

# **SPOKANE COUNTY ROAD STANDARDS**

**January 2010**



**SPOKANE COUNTY ENGINEERS**

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## **1.00 GENERAL CONSIDERATIONS**

### **1.01 APPLICABILITY**

These Standards shall apply to all new construction of public and private roads in Spokane County and as far as practicable and feasible to reconstruction, resurfacing, restoration, and rehabilitation of old roads comprising the Spokane County Road System. In case of any ambiguity or dispute over interpretation of the provisions of these Road Standards, the decision of the County Engineer shall be final but subject to the review process described in 1.08 "Deviations and Review of Decision". Prior to the issuance of a building permit, a lot, parcel, or tract of land shall have access by a driveway, private road, or public road.

### **1.02 DEFINITIONS**

1. "3-R" shall mean a construction activity that involves the resurfacing, restoration, or rehabilitation of an existing road.
2. "All-weather road" shall mean a gravel or paved road described under Section 1.07 "Non-Conforming Private Roads" of these Standards. The traveled way shall have a two-percent crown and, be surfaced with a minimum of seven inches of Crushed Surfacing Top or Base Course.
3. "Border" shall mean the portion of a street between the edge of pavement and the right-of-way line or the area between the edge of shoulder and the right of way line. This area is used for curbing, planting areas, sidewalk, utilities, etc.
4. "Border easement" shall mean the areas on curbed roads, between the right of way line and the back of sidewalk dedicated as an easement.
5. "Change of Use" shall conform to the provisions of the International Building Code.
6. "Clear Zone" is used to designate the unobstructed area provided beyond the edge of the traveled way for the recovery of errant vehicles.
7. "County Engineer" is the Spokane County Engineer, having authorities specified in RCW 36.75.050 and 36.80, or an authorized representative.
8. "Cul-de-sac" is a short street having one end open to traffic and ending with a vehicle turnaround, either permanent or temporary.
9. "Curb Ramp" shall mean a short, depressed section of curb and sidewalk, normally placed at street intersections, designed to facilitate travel of physically disadvantaged persons.
10. "Design Deviation Review Panel" shall mean an advisory review panel selected by the County Engineer to review deviation request denials. The panel consists of

three professional engineers, two from public service and one from the private sector.

11. "Driveway" shall mean private driveways that provide primary vehicular access from a public or private road to up to three lots.
12. "Driveway Approach" shall mean any area, construction or facility between the roadway of a street and private property to provide access for vehicles from the roadway of a street to serve up to three lots, tracts or parcels, except as provided herein.
13. "Engineer" shall mean a Professional Engineer licensed by the State of Washington.
14. "Established County Road" shall mean a road that has been accepted by Spokane County for maintenance with public funds.
15. "Established Grade" shall mean the profile and cross-sections approved by the County Engineer.
16. "Final Approval" shall mean the signature of the County Engineer on the final plat map, short plat, binding site plan, or commercial building permit release, or the County Engineer's concurrence for approval of a certificate of occupancy.
17. "Half-street" is an access street completely constructed on one side of the centerline plus the twelve-foot lane on the opposite side of the centerline. .
18. "Hazard" shall mean a side slope steeper than 3:1 (horizontal/vertical), a fixed object, or water which, when struck, would apply unacceptable impact forces on the vehicle occupants or place the occupants in a hazardous position. It may be natural or manmade.
19. "Level of Service" (LOS) is a qualitative measure of traffic flow. Six levels are defined as "A" through "F" with "A" being the best operating conditions and "F" being the worst. (See Highway Capacity Manual)
20. "New Construction" shall mean the construction of a new roadway or structure on a new alignment. It also means the upgrading of an existing roadway or structure by the addition of one or more continuous traffic lanes.
21. "Planting Strip" shall mean the space between the edge of the pavement or the back of the curb and the sidewalk.
22. "Private Road" shall mean privately owned vehicular access route serving more than three residential lots; or any commercial parcels which do not have frontage on a public road right- of-way. Spokane County does not maintain private roads.

23. "Project" shall mean the design and construction of infrastructure associated with land development activities.
24. "Public Road" where used in these standards, shall mean a road is, or shall be, established by Spokane County.
25. "Reconstruction" shall mean major construction of an existing road greater than 3-R. Reconstruction includes significant changes in cross section and/or shifts in vertical or horizontal alignment. A project is considered reconstruction if 50% or more of the project length involves significant vertical or horizontal alignment change.
26. "Record Drawings" shall mean the plan set, which is certified to contain a true and accurate representation of the actual field, conditions for the project during construction, or upon completion of construction.
27. "Resurfacing" shall mean the addition of a layer or layers of paving material to provide additional structural integrity or improved profile and serviceability. This includes paving existing gravel roads if the improvement is not reconstruction as defined in paragraph 26 of this section.
28. "Restoration" shall mean work done on pavement or bridge decks to prepare them for an additional stage of construction. This may include supplementing the existing roadway by increasing surfacing and paving courses to provide structural capability, widening up to a total of 10 feet, and installing localized safety improvements. Restoration will generally be done within the existing right of way.
29. "Rehabilitation" shall mean work similar to restoration except the work may include but is not limited to the following:
- Reworking or strengthening the base or subbase
  - Recycling or reworking existing materials to improve their structural integrity
  - Adding underdrains
  - Replacing or restoring malfunctioning joints
  - Substantial pavement undersealing when essential for stabilization
  - Grinding of pavements to restore smoothness, providing adequate structural thickness remains
  - Removing and replacing deteriorated materials
  - Crack and joint sealing but only when required shape factor is established by routing or sawing
  - Improving or widening shoulders
30. "Road" and "Street" will be considered interchangeable terms in these Standards.
31. "Roadway" shall mean the portions of a street, including shoulders but excepting concrete gutters, designed or ordinarily used for vehicular travel.

32. "Rural" shall mean a location outside of the current Urban Growth Boundary as adopted by The Board of County Commissioners.

33. "Sponsor" shall mean the party identified as the proponent of a development action. The Sponsor is responsible for preparing plans and for constructing of infrastructure to support the proposed action or project as required by the Standards.

34. "Sponsor's Engineer" shall mean:

Design phase - the Design Engineer who directly prepared plans and calculations, or who directly supervises the preparation of project plans and calculations. The Design Engineer seals, signs and dates the plans and calculations, certifies that they meet the required standards, and approves the plans for construction. Also known as the "Engineer of Record", the Design Engineer may also act in capacity of the Construction Engineer.

Construction phase - the Construction Engineer who directly inspects, or who directly supervises the inspection of the construction of a project to ensure compliance to the plans and standard specifications. The Construction Engineer maintains and certifies the Record Drawings. The Construction Engineer may have also acted in the capacity of the Design Engineer.

35. "Standards" shall mean the requirements contained in the "Spokane County Standards for Road and Sewer Construction"

36. "Street" is intended to include any avenue, boulevard, circle, drive, street, court, alley, or other public passageway within the Spokane County.

37. "Substantial Completion" shall mean that (1) Spokane County and/or any applicable homeowner association must have full and unrestricted use and benefit of the facilities, both from an operational and a safety standpoint; (2) The facilities must conform to the Conditions of Approval and the Standards; (3) and only minor, incidental repair work, replacement of temporary substitute facilities remains to reach physical completion of the work.

38. "Surety" shall mean a financial guarantee by the Sponsor, naming Spokane County as beneficiary, that infrastructure required for a project will be constructed and certified according to the plans and specifications and all applicable Standards. The financial guarantee may be in the form of a cash savings assignment, letter of credit, or bonding company instrument. The language of the surety document must be acceptable to the Spokane County Prosecuting Attorney's Office.

39. "Surveyor" shall mean a Professional Land Surveyor licensed by the State of Washington.



40. "Traffic Barrier" shall mean a barrier oriented parallel or nearly parallel to the roadway. The purpose of these devices is to contain or redirect errant vehicles from hazards within the clear zone.
41. "Traffic Impact Study" shall mean a report that documents a study of traffic conditions before and after construction of a proposed development. It addresses any deficiencies in the transportation system, either current or after development, and proposes recommended mitigation to correct those deficiencies. (See Technical Reference A)
42. "Traveled way" is comprised of the through traffic lanes. It is the portion of a street designed or ordinarily used for vehicular travel excluding shoulders, medians, bicycle lanes, or exclusive turn lanes.
43. "Urban" shall mean a location within the current Urban Growth Boundary as adopted by the Board of County Commissioners.

### **1.03 RESPONSIBILITY TO PROVIDE**

All development shall include provision for construction or improvement of the road according to these Standards. The Sponsor's Engineer shall consider the following guidelines in planning transportation systems.

1. Adequate vehicular and pedestrian access should be provided to all parcels of land.
2. Local access streets should be designed to minimize through traffic movements and excessive speeds.
3. Street patterns and names should be logical, consistent and understandable to satisfy the needs of emergency and delivery vehicles.
4. Vehicular and pedestrian-vehicular conflict points should be minimized. The Sponsor's Engineer should use Tee intersections on local access systems. Four-way intersections should be minimized on local access roads.
5. Traffic generators within the project should be considered and the street system designed appropriately.
6. The Sponsor's Engineer should consider bordering arterial routes and should provide design continuity.
7. No direct residential lot access should be allowed to urban principal and minor arterials. Access management should be considered on major rural arterials.
8. When a project has the cumulative effect of creating a total number of living units served by an access road equal to or greater than 30 residential units or 100 apartments/attached housing, the Sponsor shall provide an additional access road into the development. The second access shall be a full and open roadway. If the location and layout of a development, in the opinion of the fire district authorities, causes a concern for safety, an additional access road may be required.

Privately owned access roads may be closed with a gate. No locking gates will be allowed without approval of the fire district.

9. The Sponsor's Engineer shall consider ease of maintenance when designing public roads.

#### **1.04 REFERENCES**

These Standards are intended to be consistent with the following references, as amended:

1. City and County Design Standards for the Construction of Urban and Rural Arterial and Collectors adopted February 10, 1994 per RCW 35.78.030 and RCW 43.32.020.
2. Spokane County Subdivision Ordinance
3. Washington State Local Agency Guidelines.
4. "A Policy on Geometric Design of Highways and Streets" published by the American Association of Highway and Transportation Officials (AASHTO).
5. "Highway Capacity Manual" (Special Report 209) published by the Transportation Research Board, National Research Council.
6. "Roadside Design Guide" published by the American Association of Highway and Transportation Officials (AASHTO).
7. Spokane County Comprehensive Plan including the Arterial Road Plan.
8. Spokane County Zoning Code.

#### **1.05 NOT USED**

#### **1.06 STATE SPECIFICATIONS AND PLANS**

Except where stated in these Standards, design and construction shall conform to the current editions of the following Washington State Department of Transportation publications, as adopted by Spokane County:

1. Standard Specifications for Road and Bridge Construction. It will be referred to as the "Standard Specifications."
2. Standard Plans for Road and Bridge Construction.

#### **1.07 NON-CONFORMING PRIVATE ROAD**

A non-conforming private road is an access easement (1) recorded with the Spokane County Auditor (Record-of-Survey, easement document, other) and (2) approved by

Spokane County (Certificate-of-Exemption issued prior to May 15, 1995, building permit, other) as a private road.

Private roads will not be required to comply with the provisions of these standards if all of the following conditions exist:

1. The roads are located within easements recorded prior to May 15, 1995.
2. The roads have all-weather surfaces and comply with this manual.

Private roads constructed according to Spokane County Standards on or after May 15, 1995 and before the effective date of this ordinance shall be deemed as non-conforming and shall not be required to comply with the provisions of these Standards.

### **1.08 DEVIATIONS AND REVIEW OF DECISION**

1. Deviations from these Standards may be granted by the County Engineer in writing upon written evidence from the Project Sponsor that the proposed deviation does not conflict with or modify a condition of approval, and
2. Deviations are based upon sound engineering principles, and
3. Deviations meet requirements for safety, function, appearance, and maintainability. Public road safety outweighs economic feasibility and physical constraints.

Desired deviations must be approved before road plans are accepted for residential development. Deviations must be approved before commercial building permits are issued. The County Engineer may apply conditions to the approval of design deviations. The conditions may not have been required in the preliminary plat approval. In case of a denial of a deviation request, the Developer may request a review and reconsideration of the denial. The Design Deviation Review Panel will review the deviation request and make a recommendation to the County Engineer. The County Engineer will then consider the recommendation of the Design Deviation Review Panel and render a final decision on the deviation request.

### **1.09 NOT USED**

### **1.10 NOT USED**

### **1.11 ROADWAY TYPES**

The types and widths of County streets are shown in Tables 3.01, 3.02, and 3.03. Standard Plan sheets entitled "Roadway Section-Curbed" and "Roadway Section-Shouldered" show typical roadway cross-sections. Curbed streets shall be constructed on roads within an urban land use classification. The County Engineer may

also require curbs in other land use classifications near schools or commercial establishments.

## 1.12 ROADWAY CLASSIFICATIONS

### 1. RURAL ARTERIAL SYSTEM

- A. Major Collector Arterial - These routes (1) serve County seats on arterial routes, larger towns not directly served by the higher systems, and other important traffic generators, such as consolidated schools, shipping points, County parks, and important mining and agricultural areas; (2) link these places with nearby larger towns or cities, or with routes of higher classification; and (3) serve the more important intracounty travel corridors.
- B. Minor Collector Arterial - These routes should (1) be spaced at intervals consistent with population density to accumulate traffic from local routes and bring all developed areas within reasonable distance of collector roads, (2) provide service to remaining smaller communities, and (3) link the locally important traffic generators with their rural surrounding areas.

### 2. URBAN ARTERIAL SYSTEM

- A. Principal Arterial Street - The urban principal arterial system serves the major centers of activity of urbanized areas. They are the highest traffic volume corridors and have the longest trip desires. Principal arterials carry a high proportion of the total urban area travel on a minimum of mileage. Access to principal arterials may be controlled or uncontrolled. The system should be integrated internally and between major rural connections. The principal arterial system carries most of the trips entering and leaving the urban area, and most of the through movements bypassing the central city. This class of facility serves significant intra-area travel. This includes travel between central business districts and outlying residential areas, between major inner-city communities, and between major suburban centers.

Frequently, the principal arterial system carries important intra-urban and inter-city bus routes. Finally, in urbanized areas, this system provides continuity for all rural arterials that intercept the urban boundary. (AASHTO).

- B. Minor Arterial Street - The minor arterial street system interconnects with and augments the principal arterial system. It provides trips of moderate length at a lower level of travel mobility than principal arterials do. This system distributes travel to geographic areas smaller than those identified with the higher system. The minor arterial street system includes all arterials not classified as principal. Minor arterials system place more emphasis on land access than the higher system does and offers lower traffic mobility. Such a facility may carry local bus routes and provide intra community continuity but ideally does not penetrate identifiable neighborhoods. Minor arterials include

urban connections to rural collector roads where such connections have not been classified as principal arterials for internal reasons. (AASHTO).

### 3. COLLECTOR SYSTEM

The collector street system provides both land access service and traffic circulation within residential neighborhoods and commercial and industrial areas. It differs from the principal and minor arterial systems in that facilities on the collector system may penetrate residential neighborhoods, distributing trips from the arterials through the area to their ultimate destinations. Conversely, the collector street also collects traffic from local streets in residential neighborhoods and channels it into the arterial system. The collector street system may also carry local bus routes. (AASHTO).

### 4. LOCAL ACCESS ROADS

Local access roads allow direct access to abutting lands and connections to the higher order systems. They offer the lowest level of mobility. Local access roads should be designed to discourage service to through-traffic movement.

1. Industrial/Commercial - Industrial local access streets abut manufacturing facilities, processing plants, or warehousing facilities, stores, dense multiple family dwellings, commercial sources, office and professional buildings. These roads support access to industrial/commercial uses and promote connectivity to compatible trip destinations. Transit routes may be designated on these local access roads if appropriate for supporting land use and transit system needs.
2. Residential Access - Through streets, loop streets and cul-de-sac streets that provide access to homes connecting to a collector arterial or other residential access streets. These roads do not support through traffic and usually do not contain transit routes.

#### 1.13 HALF-STREET

A half-street is permitted as an interim facility. Half-streets may be used pending construction of the entire street by the owner on the opposite side of the road. When a project has frontage on an undeveloped or gravel roadway a half street improvement will be required. This will require the full improvement of the side adjacent to the project and the addition of 12 feet of asphalt and gravel shoulder on the side away from the development.

#### 1.14 SUMMER ROADS

Summer roads are existing, rural, low-volume, unpaved, access roads and are designated as such by a sign at all places where the summer road portion begins or connects with a highway or road other than a summer road. These roads are not fully maintained roads. Maintenance occurs as needed, on an irregular basis within system-wide priorities, only

during the summer months. Snow removal is not performed on these roads. Summer roads are usually not constructed to proper design standards and do not have warning nor regulatory traffic signs. The creation of new lots whose only access is by summer roads shall not be allowed.

### **1.15 NOT USED**

### **1.16 ROAD NAMES**

The Sponsor may suggest road names within a development. Road Names will be reviewed by the County Engineer and modified as necessary to conform to regulations. Road name designations shall be as follows:

1. All streets located outside the Urban Growth Area shall be called Roads.
2. All North-South streets shall be called Streets.
3. All East-West streets shall be called Avenues.
4. Streets in large subdivisions that do not have a definite directional course shall be called Drives.
5. A dead-end street or cul-de-sac when not an extension of an existing street or a continuation of any future street shall be called a Court.
6. A street that lies diagonally to the east-west, north-south grid system and is an arterial or collector street shall be called a Boulevard.
7. A street that has its ingress and egress on the same street shall be called a Circle.
8. A private road shall be called a Lane.

### **1.17 – 1.19 NOT USED**

### **1.20 LEVELS OF SERVICE**

The County Engineer has established acceptable Levels of Service (LOS) for traffic at Spokane County intersections. Levels of Service are used in determining the impacts on the road system by land development proposals. The minimum acceptable LOS are:

1. signalized-"D"
2. unsignalized-"E"

### **1.21 - 1.29 NOT USED**

### **1.30 TRAFFIC IMPACT STUDY**

Prior to a land use action, the Sponsor shall perform a traffic impact study when the project meets the criteria of one or more of the items listed below.

1. The County Engineer determines that the proposed development will generate enough peak hour trips to lower or aggravate the minimum acceptable LOS.
2. The County Engineer determines that driveways from the land development proposal have the potential to generate traffic safety problems on the adjacent public roadway or when driveways have the potential to create queue issues on public roads.
3. The County Engineer determines that an existing route with a history of traffic accidents will be further impacted by an increase in traffic from the proposal.
4. When project action would impact public roadway traffic circulation or access.

A specific scoping by the County Engineer may range from an in-depth analysis of site generated levels-of-service to a cursory review of safety issues. The County Engineer shall determine the specific project scope. The Sponsor shall submit a traffic report signed by a Professional Engineer, licensed in the State of Washington. The traffic impact study shall be performed in accordance with Technical Reference A of these Standards.

### **1.31 FRONTAGE IMPROVEMENT OBLIGATION**

All commercial, industrial, institutional, and multi-family residential property development together with all plats, short plats, and binding site plans shall have the general obligation to bring any substandard and abutting County right(s)-of-way and County road(s) up to the current requirements of the arterial road plan and functioning classification of the road, respectively. Required roadway improvements must be completed prior to finalization of any non-residential binding site plan, short plat, or plat unless otherwise allowed by the County Engineer or their authorized agent. Additional road improvements or mitigation measures may also be required pursuant to the findings of the accepted traffic study or analysis required for that proposal.

These obligations may be applied at the time of any land-actions involving subdivisions of land in conjunction with plats and short plats of residential properties and binding site plans of commercial/industrial properties, and to zone changes granting more traffic intensive uses. In the cases where land-actions are not involved or when involved where deferment is deemed by the County Engineer, or their agent, in the public best interest, these obligations will be applied at the time of the "commercial" building permits. This refers to new property development, redevelopment, major expansion & modernization projects, building changes of use, and to any building permit where legal, non-conforming conditions are already present.

General right-of-way/easement obligations will be met in the following way, unless an alternative that best provides for the long-term public benefit has been accepted by the County Engineer or their authorized agent:

Dedication of additional County right(s)-of-way/public easements along the entire property frontage to the standard half-width including corner radii and end transitions for the road

classification and type together with the necessary abutting Border Easement for any accessory uses such as grading, drainage, sidewalks, and other accessory road needs.

General half-road improvement obligations will be met in the following way, unless an alternative that best provides for the long-term public benefit has been allowed and accepted by the County Engineer or their authorized agent:

Construction of standard or special section half-road improvements along the property frontage shall be required. The extent of the frontage improvements may be reduced at the discretion of the County Engineer or their agent should a certain or reasonable opportunity exist for the remainder of the improvements to be required at a later time. Half road improvements may not be limited to simple widening, but may include providing two valid travel lanes with any attenuate reconstruction and adequate construction materials.

### **1.32 CONNECTIVITY**

The intent of urban connectivity design standards is to provide for a system of streets that offer multiple routes and connections allowing ease of movement for cars, bikes and pedestrians including frequent intersections and few closed end streets (cul-de-sacs). The design of projects within Spokane County's Urban Growth Areas shall adhere to the following urban connectivity design standards, unless otherwise approved by the Director of Planning and the Spokane County Engineer pursuant to 12.300.123(2) below:

1. Block length for local streets shall not exceed 660 feet, unless an exception is granted based on one or more of the following:
  - a. Physical Conditions preclude a block length 660 feet or less. Such conditions may include, but are not limited to, topography natural resource areas, critical areas or shorelines.
  - b. Buildings, train tracks or other existing development on adjacent lands physically preclude a block length 660 feet or less.
  - c. An existing street or streets terminating at the boundary of the development site have a block length exceeding 660 feet, or are situated such that the extension of the street(s) into the development site would create a block length exceeding 660 feet.
2. The proposed development shall include street connections to any streets that abut, are adjacent, or terminate at the development site.
3. The proposed development shall include streets that extend to undeveloped or partially developed land that is adjacent to the development site. The streets will be in locations that will enable adjoining properties to connect to the proposed development's street system.
4. Permanent dead end streets or cul-de-sacs shall only be allowed when street connectivity can not be achieved due to barriers such as topography, natural features or existing development, e.g. train tracks. Cul-de-sacs that are allowed



based on the above, shall be limited to 300 feet as measured from the centerline of the intersecting street to the radius point of the cul-de-sac.

5. Streets must be public if they are designed to connect to an adjacent site, or will serve lots on an adjacent site.
6. New private streets are strongly discouraged and typically only allowed when street connectivity can not be achieved, such as property that is isolated by topography or the configuration of existing lots and streets, and shall adhere to the following requirements:
  - a. Private streets shall be constructed in accordance with the design standards for public streets.
  - b. Pedestrian access shall be provided from the private street to an existing or future street or public pathway if vehicular access cannot be provided

Exceptions to 12.300.123(1) above may be granted with the approval of the Director of Planning and the Spokane County Engineer based on the unique attributes of the site or surrounding properties. Exceptions shall not be based on economic considerations related to the costs associated with infrastructure improvements. Justification for any exception shall be made in writing and included as findings in the preliminary plat approval.

In rural areas private roads may still be allowed at the sole discretion of the County Engineer. Even where private roads are allowed the dedication of right-of-way and border easements may be required to facilitate future connectivity.

The applicant is strongly encouraged to meet with Spokane County Engineering staff prior to laying out the project to determine what connectivity requirements will apply.

### **1.33 - 1.39 NOT USED**

### **1.40 SEVERABILITY**

If any part of the Spokane County Guidelines for Road and Sewer Construction as established by ordinance shall be found invalid, all other parts shall remain in effect.

## 2.00 ROAD TYPES & GEOMETRIC FEATURES

1. County roads are classified functionally as shown in subsections 1.12 and as shown on the arterial road plan. Based on these classifications the criteria for right of way, road width, and other geometric features shall be as stated. Function is the controlling element for classification. Access, spacing, ADT<sup>1</sup> and DHV<sup>2</sup> are merely typical.
2. Terrain is a basis for further classification of geometric requirements.
  - A. Flat terrain is that condition where roadway sight distances, as governed by both horizontal and vertical restrictions, are generally long or could be made to be so without construction difficulty or major expense. The slope of the existing terrain is from 0% to and including 5%.
  - B. Rolling terrain is that condition where the natural slopes rise above and fall below the roadway grade line consistently. Normal roadway alignment is restricted some by occasional steep slopes. The slope of the existing terrain is from 5% to and including 15%.
  - C. Mountainous terrain is that condition where longitudinal and transverse changes in the elevation of the ground with respect to a roadway are abrupt and where the roadbed is obtained by frequent benching or side hill excavation. The slope of the existing terrain exceeds 15%.

Terrain classification pertains to the general character of the specific route corridor. Roads in valleys or passes of mountainous areas that have all the characteristics of roads traversing flat or rolling terrain should be classified as flat or rolling. In rolling terrain, trucks reduce their speeds below those of passenger cars on some sections of roadway. Mountainous terrain is responsible for some truck operation at crawl speeds. In cases where the terrain classification is in question, the County Engineer shall make the final decision.

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1. Average Daily Traffic  
2. Design Hourly Volume

### **3.00 NEW CONSTRUCTION DESIGN STANDARDS**

#### **3.01 COUNTY ARTERIAL AND COLLECTOR STREETS**

Standards for construction of new arterial roads and reconstruction of existing arterial roads within Spokane County shall follow these standards and criteria shown below. "A Policy on Geometric Design of Highways and Streets" (AASHTO) shall govern all design elements not shown in these standards.

#### **3.02 COUNTY LOCAL ACCESS STREETS**

Standards for construction of new local access roads and reconstruction of existing local access roads within Spokane County shall follow the criteria shown on Table 3.03 Local Access Street Design Elements. "A Policy on Geometric Design of Highways and Streets" (AASHTO) shall govern all design elements not shown in these standards.

#### **3.03 TYPICAL ROADWAY SECTION**

The County Engineer shall for each application designate typical roadway sections using the widths shown in Tables 3.08, 3.08A, and 3.08B of these Standards. In selecting the roadway section to be applied, the County Engineer will review and give consideration to certain factors in connection with the proposal, including but not necessarily limited to the functional classification of the roadway, traffic volume, the terrain, density of the proposed or existing development, the proposed or existing zoning, the existing roads in the immediate area, the cost relationship of the proposed improvements, the surrounding developments, transit, pedestrians/bicycles, on-street parking needs, and other such factors as are deemed significant of the proposal being reviewed in light of public health, safety and welfare.

The County Engineer may allow special arterial sections incorporating certain design elements (planting strips, median treatments, etc.) that enhance the roadway's geographic location, scenic vistas, recreational opportunities, and/or enhance stormwater management. The design should not degrade the functionality or safety of the roadway. Where a special section is desired and includes landscaping, a care and maintenance plan will also be required.

#### **3.04 INTERSECTIONS**

The minimum curb-return radius at intersections on an arterial road shall be thirty feet. The minimum curb return radius at all other intersections shall be twenty feet. Larger radii may be required where truck traffic is a significant factor. Where trucks are a significant factor, the County Engineer shall decide the size of the return radii.

The right of way at curb returns on arterial streets shall allow space for future signal foundations.

All intersections shall be designed at right angles to the intersecting road, where possible. If a right angle is not possible, the skew angle shall not vary more than 15 degrees from a right angle. At four legged intersections, opposite legs shall lie on a straight alignment where possible. The minimum distance between intersections on a County road shall be:

- 300 feet for any road intersecting with a principal or minor arterial.
- 150 feet for any road intersecting with a local access or collector arterial .

Distances are measured from the centerline of the intersecting road to the centerline of the next intersecting road.

The cross slope of the higher priority roadway shall be extended through the intersections. The grade of the crossroad shall be adjusted to meet the cross slope of the higher priority roadway.

The road approach area is where vehicles store while waiting to enter an intersection, and shall be designed with a nearly flat grade. The road approach at a traffic controlled intersection, or potential future traffic controlled intersection, shall have a downgrade approaching the intersection of no greater than 2%. An upgrade approaching the intersection shall be no steeper than 4%. The minimum length of the road approach area, measured from the edge of curb face, or traveled way where curbs are not present, is to be in accordance with Table 3.04. For any road classification not listed in Table 3.04, the County Engineer may require a traffic analysis to determine the road approach length.

| Average Daily Traffic (ADT) of Higher Priority Road | Minimum Road Approach Length<br>(2% Maximum Downgrade and 4% maximum upgrade) |                                    |
|---|---|------------------------------------|
|   | Local Access Streets & Private Roads <sup>(1)</sup>                           | Collector Arterials <sup>(2)</sup> |
| ADT < 1000  | 25 ft.  | 50 ft.                             |
| 1000 < ADT < 5,000                                  | 50 ft.  | 75 ft.                             |
| 5,000 < ADT < 7,000                                 | 75 ft.  | 100 ft.                            |
| 7,000 < ADT < 9,000                                 | 75 ft.  | analysis required                  |

Notes:

- (1) Using a threshold of 70 peak hr left turns
- (2) Using a threshold of 110 peak hr left turns

**Table 3.04 MINIMUM LANDING LENGTH**

### 3.05 BORDER EASEMENTS

On curbed roads with separated sidewalks or pathways border easements shall be granted to Spokane County and shall be described in the plat dedication. Border easements shall include the area from the right-of-way line to the back of sidewalk or

pathway and shall run the total length of the road on both sides. The abutting property owner shall maintain sidewalks, driveways, and landscaping within the border easements. Spokane County will maintain drainage inlets, grates, pipes, and drywells used for disposal of public road drainage.

Fences shall not be constructed inside the easement. The border easement area shall be kept clear of other objects that would obstruct a driver's view. The sidewalk or pathway shall be open for use of pedestrian and bicycle traffic at all times. The easement shall be available for use by utility companies.

### **3.06 NOT USED**

### **3.07 SLOPES**

The steepest slope for embankment or excavation shall normally be 2:1 (horizontal/vertical). Approval of steeper slopes will require a report signed by a licensed engineer qualified in soils testing and analysis. Please note that slopes exceeding 4:1 will require a roadside safety evaluation.

The Sponsor's Engineer shall provide a space between the catch point of the slope and the right of way line on shouldered roads side slope of 3:1 or steeper. This space provides for utility poles, fences, sloped rounding, etc. The minimum distance of this space shall be five feet.

Embankment slopes constructed with native soil or imported soil shall not be steeper than an inclination of 2:1 provided proper fill placement and compaction criteria, and erosion control are called for in the contract documents. Steeper embankment slopes for any embankment height, including mechanically stabilized earth slopes, may be permitted by the County provided the Sponsor's Engineer can demonstrate that the factor of safety against slope instability (global and internal) is not less than 1.3, and that erosion potential of the slopes will be properly mitigated during construction.

Cut slopes in competent native soils shall not be steeper than an inclination of 2:1 unless a qualified geotechnical engineer provides approval for slopes of steeper inclination. Erosion mitigation shall be included in the contract documents. Cut or fill slopes taller than 20 feet should be approved by a licensed geotechnical engineer. The terrain or design features of a road may require slope, wall or drainage easements beyond the right of way line and involve structural design for retaining walls greater than four feet in height or surcharged on the high side. The County Engineer shall require easements or acquisition of right of way.

### **3.08 RIGHT-OF-WAY**

The road ROW width shall be determined by summing the total of widths of all required roadway elements from Tables 3.08A and 3.08B and applying sums to the Standard Plans entitled "Roadway Sections-Curbed" or "Roadway Sections-Shouldered", as applicable.

| Minimum Design Elements <sup>1</sup>       | Type                           | Urban Arterial System |                               |                          |                   | Urban Collector System | Rural Arterial System    |                   |                   |
|--|--------------------------------|-----------------------|-------------------------------|--------------------------|-------------------|------------------------|--------------------------|-------------------|-------------------|
|  |                                | Classification        | Principal (Controlled Access) | Principal (Uncontrolled) | Minor             | Collector              | Minor or Major Collector |                   |                   |
|  | Construction                   | Curb                  | Shoulder                      | All                      | All               | All                    | Shoulder <sup>5</sup>    |                   |                   |
|  | ADT                            | All                   | All                           | All                      | All               | All                    | Below 400                | 400-2000          | Over 2000         |
| Design Speed (mph)                         | Flat<br>Rolling<br>Mountainous | 55<br>50<br>40        | 55<br>50<br>40                | 40<br>40<br>35           | 40<br>35<br>30    | 30<br>30<br>30         | 50<br>40<br>30           | 50<br>40<br>30    | 55<br>50<br>40    |
| Horizontal Curve Radius <sup>2</sup> (ft)  | Flat<br>Rolling<br>Mountainous | 1190<br>955<br>500    | 1190<br>955<br>500            | 575<br>500<br>350        | 500<br>350<br>230 | 275<br>275<br>230      | 765<br>470<br>255        | 765<br>470<br>255 | 960<br>765<br>470 |
| Superelevation (%)                         | Maximum                        | 4                     | 4                             | 4                        | 4                 |                        | 8                        | 8                 | 8                 |
| Grade (%) <sup>3</sup>                     | Maximum<br>Minimum             | 6<br>0.5              | 6<br>0.5                      | 6<br>0.5                 | 8<br>0.5          | 8<br>0.5               | 8<br>0.5                 | 6<br>0.5          | 6<br>0.5          |
| Stopping Sight Distance (ft)               | Flat<br>Rolling<br>Mountainous | 450<br>400<br>275     | 450<br>400<br>275             | 275<br>275<br>225        | 275<br>225<br>200 | 200<br>200<br>200      | 400<br>275<br>200        | 400<br>275<br>200 | 450<br>400<br>275 |
| Intersection Sight Distance(ft)            | AASHTO (latest edition)        |                       |                               |                          |                   |                        |                          |                   |                   |
| Crest Vertical Curves <sup>4,6,7</sup> (K) | Flat<br>Rolling<br>Mountainous | 150<br>110<br>60      | 150<br>110<br>60              | 60<br>60<br>40           | 60<br>40<br>30    | 60<br>40<br>30         | 110<br>60<br>30          | 110<br>60<br>30   | 150<br>110<br>60  |
| Sag Vertical Curves <sup>4,6,7</sup> (K)   | Flat<br>Rolling<br>Mountainous | 100<br>90<br>60       | 100<br>90<br>60               | 60<br>60<br>50           | 60<br>50<br>40    | 60<br>50<br>40         | 90<br>60<br>40           | 90<br>60<br>40    | 100<br>90<br>60   |

See next page for footnotes.

**TABLE 3.08  
ARTERIAL AND COLLECTOR STREET DESIGN ELEMENTS<sup>1</sup>**

1. In addition, geometric design shall be consistent with "A Policy on Geometric Design of Highways and Streets, AASHTO".
2. Minimum horizontal curves reflect maximum superelevation rates. Flatter rates require larger radius curves.
3. Maximum grades may be exceeded for short distances subject to approval by the County Engineer "(+ 2%)".
4. Length in feet per percent of algebraic grade difference. (K value).  $L = K \times \text{Algebraic difference in grade}$ . Sponsor's Engineer may use method shown in AASHTO
5. Curbed Rural Collectors shall be designed using Urban Minor standards.
6. Grade differences less than 1% do not require a vertical curve.
7. Minimum length vertical curve shall be 100 feet.
8. Superelevation requires the approval of the County Engineer.

**TABLE 3.08**  
**ARTERIAL AND COLLECTOR STREET DESIGN ELEMENTS**

| Type  | Urban Arterial System |          |       | Urban Collector System | Rural Arterial System     |          |           |     |
|---|-----------------------|----------|-------|------------------------|---------------------------|----------|-----------|-----|
| Classification                              | Principal             |          | Minor | Collector              | Major and Minor Collector |          |           |     |
| Construction                                | Curb                  | Shoulder | Curb  | Curb                   |                           |          |           |     |
| ADT   | All                   | All      | All   | All                    | Below 400                 | 400-2000 | Over 2000 |     |
| Painted Center/Left-turn Lanes <sup>4</sup> | 12'                   | 12'      | 12'   | 12'                    | -                         | -        | -         |     |
| Inside lanes                                | 12'                   | 12'      | 12'   | 12'                    |                           |          |           |     |
| Intermediate lanes                          | 12'                   | 12'      | 12'   | 12'                    |                           |          |           |     |
| Outside lanes <sup>1</sup>                  | 16'                   | 12'      | 16'   | 16'                    | 12'                       | 12'      | 12'       |     |
| Shoulder                                    |                       | 8'       |       |                        | 3'                        | 6'       | 8'        |     |
| Border w/ Swale                             | 18'                   | 15'      | 18'   | 18'                    | 10'                       | 10'      | 15'       |     |
| Border w/o Swale                            | 15'                   | 8'       | 15'   | 15'                    | 6'                        | 8'       | 8'        |     |
| Roadway Width W) <sup>2</sup>               | 2 lanes               | --       | --    | 44 <sup>3</sup>        | 37 <sup>3</sup>           | 32'      | 36'       | 40' |
|   | 3 lanes               | 46'      | --    | 46'                    | --                        | --       | --        | --  |
|   | 4 lanes               | 56'      | 64'   | 56'                    | --                        | --       | --        | 64' |
|   | 5 lanes               | 70'      | 78'   | 70'                    | --                        | --       | --        | --  |
|   | 6 lanes               | 80'      | 102'  | --                     | --                        | --       | --        | --  |
|   | 7 lanes               | 94'      | --    | --                     | --                        | --       | --        | --  |
| Right of Way width                          | See Section 3.08      |          |       |                        |                           |          |           |     |

See next page for footnotes.

**TABLE 3.08A  
ARTERIAL AND COLLECTOR STREET DESIGN ELEMENTS  
MINIMUM WIDTHS**



1. Traveled lanes of a two-lane road are shown as outside lanes.
2. Distance *W* is shown on Standard Plan sheet A-1
3. Parking lanes included.
4. Where raised median islands are required, the center lane or left-turn lane shall be fourteen feet in width.

**TABLE 3.08A**  
**ARTERIAL AND COLLECTOR STREET DESIGN ELEMENTS**  
**MINIMUM WIDTHS**

| Minimum Design Elements <sup>1</sup>                 | Classification          | Industrial/Commercial |          | Residential   |                       |           |          | Private Roads <sup>11</sup> |
|--|-------------------------|-----------------------|----------|---------------|-----------------------|-----------|----------|-----------------------------|
|  | ADT                     | All                   |          | 200 and Above |                       | Below 200 |          | All                         |
|  | Construction            | Curbed                | Shoulder | Curbed        | Shoulder <sup>5</sup> | Curbed    | Shoulder | All                         |
| Design Speed (mph)                                   | Flat                    | 35                    | 35       | 30            | 30                    | 25        | 30       | 25                          |
|  | Rolling                 | 30                    | 30       | 30            | 30                    | 25        | 30       | 25                          |
|  | Mountainous             | 25                    | 25       | 25            | 25                    | 20        | 20       | 20                          |
| Minimum Horizontal Curve Radius <sup>2, 6</sup> (ft) | Flat                    | 510                   | 410      | 335           | 275                   | 200       | 275      | 200                         |
|  | Rolling                 | 335                   | 275      | 335           | 275                   | 200       | 275      | 200                         |
|  | Mountainous             | 200                   | 165      | 200           | 165                   | 110       | 90       | 110                         |
| Superelevation Rate (%)                              | Maximum                 | --                    | 2        | --            | 2                     | --        | 2        | --                          |
| Grade (%) <sup>3</sup>                               | Maximum                 | 8                     | 8        | 8             | 8                     | 8         | 8        | 8                           |
|  | Minimum                 | 0.5                   | 0.5      | 0.5           | 0.5                   | 0.5       | 0.5      | 0.5                         |
| Stopping Sight Distance (ft)                         | Flat                    | 225                   | 225      | 200           | 200                   | 150       | 150      | 150                         |
|  | Rolling                 | 200                   | 200      | 200           | 200                   | 150       | 150      | 150                         |
|  | Mountainous             | 150                   | 150      | 150           | 150                   | 125       | 125      | 125                         |
| Intersection Sight Distance (ft)                     | AASHTO (latest edition) |                       |          |               |                       |           |          |                             |
| Crest Vertical Curves <sup>4</sup> (K)               | Flat                    | 40                    | 40       | 30            | 30                    | 20        | 30       | 20                          |
|  | Rolling                 | 30                    | 30       | 30            | 30                    | 20        | 30       | 20                          |
|  | Mountainous             | 20                    | 20       | 20            | 20                    | 10        | 10       | 10                          |
| Sag Vertical Curves <sup>4</sup> (K)                 | Flat                    | 50                    | 50       | 40            | 40                    | 30        | 40       | 30                          |
|  | Rolling                 | 40                    | 40       | 40            | 40                    | 30        | 40       | 30                          |
|  | Mountainous             | 30                    | 30       | 30            | 30                    | 20        | 20       | 20                          |
| Roadway Width (ft) <sup>7,8</sup>                    | Minimum                 | 40                    | 40       | 29            | 29                    | 29        | 29       | 29                          |
| Intersection return radii (ft)                       | Minimum                 | 30                    | 30       | 20            | 20                    | 20        | 20       | 20                          |
| Right of Way Width (ft)                              | See Section 3.08        |                       |          |               |                       |           |          |                             |

See next page for footnotes.

**TABLE 3.08B  
LOCAL ACCESS STREET DESIGN ELEMENTS**

1. In addition, geometric design shall be consistent with "A Policy on Geometric Design of Highways and Streets, AASHTO".
2. Where superelevation rate is shown, minimum horizontal curves reflect maximum superelevation rates. Curves with lower rates require longer radius curves.
3. Maximum grades may be exceeded for short distances subject to approval by the County Engineer.
4. Length in feet per percent of algebraic grade difference (K value).  $L = K \times \text{Algebraic difference in grade}$ . Sponsor's Engineer may use method shown in AASHTO pgs. 281 through 295. Grade differences less than 1% do not require a vertical curve. The minimum length vertical curve shall be 50 feet.
5. Rural access roads with higher speed limits shall be designed for no less than the speed limit.
6. Minimum radius curves for curbed roads shall be consistent with AASHTO, low speed urban streets standards.
7. Paved roadway width does not include curb and/or gutter section.
8. Includes shared access.
9. Superelevation requires the approval of the County Engineer.
10. Median islands noses shall be no closer than 20 feet to the public road curb line.
11. Inside the Urban Growth Area all new roads will be public roads. Exceptions will only be made under very specific circumstances. Private roads will be allowed solely at the discretion of the County Engineer. Private roads may be allowed in rural areas, but right-of-way dedication will likely still be required to facilitate future connectivity. Refer to Section 1.32 Connectivity for additional information.

**TABLE 3.08B**  
**LOCAL ACCESS STREET DESIGN**

### **3.09 CONNECTIONS OF STATE HIGHWAYS AND NEW COUNTY ROADS**

The Sponsor shall prepare and submit to the County Engineer a design proposal, acceptable to the Washington State Department of Transportation (W.S.D.O.T.), of the proposed state highway - county road intersection. W.S.D.O.T. approval of the proposed design must be received before the filing of the final plat. Improvements to the state highway are the responsibility of the Sponsor. The Sponsor may either construct the improvements or furnish to the County Engineer a bond to cover the cost of such improvements. The County Engineer and W.S.D.O.T. will decide the amount of the bond.

### **3.10 NOT USED**

### **3.11 RAILROAD GRADE CROSSING**

UTC and railroad approval is required before crossing plans will be approved by the County Engineer. Standard signs and markings shall be installed at all railroad-road grade crossings. All railroad grade crossing signs and markings shall comply with the Manual of Uniform Traffic Control Devices and all other applicable State and Federal regulations.

The Sponsor shall install flashing light signals and gates, showing the approach or presence of trains, at those railroad-road crossings where studies by the County Engineer show the need of warning beyond that provided by standard signs and markings.

### **3.12 STANDARD ROAD AND TRAFFIC CONTROL SIGNING**

The sponsor shall be responsible for installation of all permanent traffic control devices. They shall submit a traffic control devices, signing and pavement markings plan for approval. The plan shall show the types and locations of all traffic control devices such as; signs, pavement markings and delineators to be installed by the project. The submitted plan shall also show existing and proposed traffic control devices and features when connecting to or widening an existing county road, including all relocations and/or alterations of traffic control devices and pavement markings.

All traffic control devices, including type and materials used shall be as required by the County Engineer and required materials shall meet the material requirements in WSDOT standard specifications. Certain devices may be required to be a specific brand or type to conform to existing county facilities.

Traffic control devices shall conform to the MUTCD for their type and intended use. If the permanent traffic control devices are not installed in a timely manner, or not properly installed, the Sponsor shall be given a 30 day notice after which time the County will furnish and install all traffic control devices on the projects. The County will bill the Sponsor for the work based on the actual cost for labor, equipment rental, and materials. If the absence of critical safety devices such as stop signs is causing a present endangerment to the traveling public, the County will immediately furnish and install the devices and bill the Sponsor for the work. All signs shall be installed per the applicable Spokane County standard plans.

### **3.13 NOT USED**

### **3.14 ROADSIDE SAFETY**

#### **The Clear Roadside Concept**

It is desirable to keep the roadside traversable and clear of hazards that can increase the consequences of a vehicle leaving the road. Using mitigating measures such as Clear Zone, breakaway devices and shielding by traffic barriers are all examples of roadside safety improvements. The project engineer is responsible for roadside safety measures on private roads.

#### **Collision History**

Any location that has a history of road departure collisions will need an analysis of the collisions and will need to be mitigated. The analysis and mitigation measures shall be approved by the County Engineer.

#### **Clear Zone**

For Clear Zone definition and information, see AASHTO Roadside Design Guide.

##### **Rural Arterials and Collectors**

Criteria set forth in the latest edition of the AASHTO Roadside Design Guide shall be used.

##### **Rural Local Access**

Criteria set forth in the latest edition of the AASHTO Roadside Design Guide shall be used. All cases clear zone shall be a minimum of 10 feet measured from traveled way.

##### **Urban Arterials and Collectors**

Criteria set forth in the latest edition of the AASHTO Roadside Design Guide shall be used. Design Speed of less than 40 MPH clear zone is a minimum of 10 feet, measured from the traveled way.

##### **Urban Local Access**

Criteria set forth in the latest edition of the AASHTO Roadside Design Guide shall be used. Design ADT less than 400 clear zone is 6 feet measured from the face of curb. Design ADT of more than 400 clear zone is 10 feet measured from the face of curb.

#### **Horizontal clearance to obstructions**

A minimum operation offset of 2 feet measured from the face of curb or edge of pavement shall be provided. No features (including clear zone compatible features) shall be placed, or remain, within this offset.

## Traffic Barrier

Traffic barrier should only be installed when warranted and shall be approved by the County Engineer. Other mitigating measures should be used prior to proposing to install traffic barriers including but not limited to; project design, clear zone, using crashworthy or traversable design.

Traffic barrier shall be designed and constructed as specified in the Washington State Department of Transportation Design Manual, Standard Plans and Standard Specifications for Road, Bridge, and Municipal Construction. Plans shall be submitted to the County Engineer for review for all barrier installations, the plan shall also show a roadway/barrier cross section. All plans shall be sealed by an engineer licensed in the State of Washington.

### 3.15 NOT USED

### 3.16 ROAD SURFACING REQUIREMENTS

All public roads and urban private roads in Spokane County shall be paved. A pavement surfacing design procedure must be performed for all public and private roads. Table 3.16 may be used in place of performing a pavement design for some residential access roads depending on subgrade classification and drainage characteristics. Rural private roads may be allowed to be gravel at the discretion of the County Engineer. For new gravel roads Table 3.16A may be used depending on subgrade classification and drainage characteristics. The design life for all roads shall be 20 years. The design procedure used must be approved by the County Engineer and must consider the following:

1. Traffic Loading - an estimate of the number and types of loadings the roadway will carry for the design life. This estimate of loading must be established by a procedure accepted by the County Engineer and be expressed in 18-Kip Equivalent Single Axle Loads (ESALs).
2. Subgrade Support - a representative value for the stiffness of the native material on which the road will be built. This value will be established by a procedure accepted by the County Engineer and be expressed as resilient modulus ( $M_R$ ). When determining  $M_R$ , soil sampling shall be done in accordance with Technical Reference B.
3. Analysis - a procedure for establishing the surfacing depth requirements for a given traffic loading and subgrade resilient modulus. This procedure must be approved by the County Engineer. The following procedure is pre-approved: *Guide for Design of Pavement Structures*, by the American Association of State Highway and Transportation Officials (AASHTO).

Structural pavement design and reporting is to be done in accordance with Technical Reference B. As an alternative, cement modified soil (CMS) design can

be used with the approval of the County Engineer.

Minimum Thickness: Regardless of the thickness computed by the design procedure, the minimum thickness of road structural section shall be as follows:

Local Access:                    2" Asphalt Concrete Pavement HMA 1/2  
    6" Crushed Surfacing Base Course

Arterial:                            4" Asphalt Concrete Pavement HMA 1/2  
    6" Crushed Surfacing Base Course

Rural roads with a traffic volume less than 200 A.D.T. may be paved by means of a light bituminous surface treatment (L.B.S.T.). The L.B.S.T. shall consist of no less than two applications of oil. The gravel thickness shall be designed according to good engineering practices considering the quality of the underlying soil. The design method shall be subject to approval by the County Engineer. In no case shall the gravel thickness be less than six inches. The Sponsor shall provide funding for an additional application of oil to be placed as a seal coat approximately one year after initial construction.

| <b>Paved Residential Streets</b>                                       |                                     |
|--|-------------------------------------|
| <b>Soil Type</b><br>Per Unified Soil<br>Classification System<br>(USC) | <b>Local Access/Private Streets</b> |
| GW   | 2 inches/6 inches                   |
| GP   | 2 inches/7 inches                   |
| GM   | 2 inches/8 inches                   |
| GC   | 3 inches/6 inches                   |
| SW   | 2 inches/7 inches                   |
| SP   | 2 inches/8 inches                   |
| SM   | <sup>1</sup> Pavement Design Needed |
| SC   | <sup>1</sup> Pavement Design Needed |
| ML   | <sup>1</sup> Pavement Design Needed |
| CL   | <sup>1</sup> Pavement Design Needed |
| OL   | <sup>1</sup> Pavement Design Needed |
| MH, OH, Pt   | <sup>1</sup> Pavement Design Needed |

<sup>1</sup>See Technical Reference B for Pavement Design Criteria

Notes:

- a) Values listed denote asphalt over crushed rock (minimum compacted thickness) {e.g. "2 inches/6 inches" denotes 2 inches of asphalt pavement over 6 inches of crushed rock}
- b) Values were calculated using the flexible pavement design method by AASHTO, and assuming traffic loads for residential-type neighborhoods. A 20-yr-design life was used.
- c) A minimum of 2 inches/6 inches structural pavement section was used in the table.
- d) The upper two feet of roadway subgrade shall be compacted to 95 percent of the maximum dry density, based on the AASHTO T-180 test procedure.
- e) To use this table the Engineer shall acquire soil samples at the project site and classify the soils encountered, in accordance with sampling requirements listed in Technical Reference B.
- f) Regardless of soil type the subgrade drainage characteristics must be taken into account during the design.

**STRUCTURAL ROAD SECTIONS  
FOR RESIDENTIAL STREETS  
PAVEMENT DESIGN ALTERNATE  
TABLE 3.16**



| <b>Low Volume Gravel Roads</b>   |   |
|--|---|
| <b>Soil Type</b><br>Per Unified Soil<br>Classification System<br>(USC) | <b>Minimum Thickness of<br/>Crushed Aggregate Surfacing</b> |
| GW   | 7 inches  |
| GP   | 7 inches  |
| GM   | 7 inches  |
| GC   | 8 inches  |
| SW   | 7 inches  |
| SP   | 7 inches  |
| SM   | 11 inches   |
| SC   | 18 inches   |
| ML   | 12 inches   |
| CL   | 18 inches   |
| OL   | 12 inches   |
| MH, OH, Pt   | 18 inches   |

Notes:

- a) Values listed denote minimum compacted thickness
- b) Values were calculated using the low volume road design method by AASHTO, and assuming traffic loads for residential-type neighborhoods. A 10-yr-design life was used.
- c) A minimum of 7 inches of crushed surfacing was used in the table for maintenance consideration.
- d) For soil types GW through SP, the upper two feet of roadway subgrade shall be compacted to 95 percent of the maximum dry density, based on the AASHTO T-180 test procedure.
- e) To use this table the Engineer shall acquire soil samples at the project site and classify the soils encountered, in accordance with sampling requirements listed in Technical Reference B.
- f) Regardless of soil type the subgrade drainage characteristics must be taken into account during the design.
- g) When multiple soil classifications are encountered below the planned road subgrade, if the higher strength soil is at least 2 feet in depth and is above the lower strength soil, then the section applicable to the higher strength soil can be used only for soil types GW through SP.
- h) To utilize a smaller section of crushed aggregate, for soil types SM through MH, OH, and Pt it may be possible to substitute a soil type GW through SP or provide a geo-grid product, upon approval of the Spokane County Engineer.

**LOW VOLUME GRAVEL ROADS  
DESIGN ALTERNATE  
TABLE 3.16A**

### 3.17 CUL-DE-SACS

The use of dead end streets is strongly discouraged. (see Section 1.32 Connectivity) Where allowed dead-end roads shall have a cul-de-sac constructed at the end. Cul-de-sacs shall have a minimum length of 150 feet and a maximum length of 300 feet. Cul-de-sacs are shown on the Standard Plan sheet entitled "Cul-de-Sac Public Roads". In areas not served by fire hydrants, cul-de-sacs shall have a radius of 50 feet. On paved rural roads, a paved cul-de-sac with a 45-foot radius and a 5-foot gravel shoulder may be used.

At the end of private roads, the developer shall construct an area for vehicles to turn around. This turn-around area shall be constructed as shown on the Standard Plan sheet entitled "Cul-de-Sac Private Roads ". Unless terrain constraints exist the preferred turn around for a private road will be a cul-de-sac.

### 3.18 CURBS, SIDEWALKS, AND PATHWAYS

1. As part of any project all new and existing facilities shall be made to comply with current ADA Guidelines. This is a requirement for all public roads within urban, commercial, and industrial land use zones, except special arterial section as approved per Section 3.03:

A. Concrete curb, gutter, and sidewalk shall be constructed on both sides of the road.

This requirement applies to all new roads, roads to be reconstructed, or where there is a change of use of a commercial property.

The County Engineer may require sidewalk and /or curb and gutter on one or both sides of the road in rural areas where pedestrian traffic can be expected to occur, including but not limited to arterial roads, commercial uses, industrial uses, schools, parks, churches or shopping areas.

B. If roads abutting commercial property have concrete curb and gutter and/or sidewalks for which the following actions are requested:

1. A building permit for a new building, or
2. Change in use of an existing building.

The owner shall replace broken or off-grade curb and gutter and/or sidewalks. The project Sponsor shall remove or replace all driveways not conforming to this chapter as directed by the County Engineer.

C. Where new concrete curb is to be placed to form a wider road than the existing paved road, the area between the existing edge of the pavement and the new curb shall be paved as directed by the County Engineer. Where the existing curb is removed and replaced at a new grade, the Sponsor shall pave the road next to the gutter to match the new grade of the gutter.

D. Standard: See Standard Plans entitled “Curbs and Gutters” and “Urban Driveways - Separated Sidewalks”.

2. On shouldered public roads, pedestrian walkways may be incorporated into the shoulder of the road. This is done by constructing shoulders wider than those shown on Tables 3.08, 3.08A, and 3.08B. The Sponsor’s Engineer shall use the structural section of the shoulder for the walkway area.

### **3.19 NOT USED**

### **3.20 CURB RAMPS**

As part of any project all new and existing curb ramps shall be made to comply with current ADA Guidelines. The Sponsor shall construct ramps to provide passage of disabled persons. The ramp shall be constructed in curb and sidewalk at all corners of intersections. Ramps shall be constructed at other crosswalk locations. Ramps shall be constructed as shown on the Standard Plan entitled “Curb Ramp”. At “T” intersections a ramp shall be constructed on the through street opposite one of the two corners. At intersections that may be signalized two curb ramps shall be installed at each corner.

### **3.21 NOT USED**

### **3.22 PRIVATE ROADS**

A private road is a privately owned vehicular access route serving more than three residential lots; or any commercial parcels which do not have frontage on a public road right of way. Inside the Urban Growth Area all new roads shall be public roads. Exceptions will only be made under very specific circumstances. Private roads will be allowed solely at the discretion of the County Engineer. Private roads may be allowed in rural areas, but right-of-way dedication will likely still be required to facilitate future connectivity. Refer to Section 1.32 Connectivity for additional information.

Commercial/industrial, institutional, and multi-family residential developments shall be subject to the private road standards if the access routes are linear features that exceed 300 feet in length and have traffic volumes greater than 40 ADT. This requirement does not apply to travel passages in parking areas, fire access, loading dock drives, and other situations where the general public does not regularly travel. Commercial/industrial, institutional, and multi-family residential developments with multiple properties shall not be subject to the private road standards where the above access route conditions are not present.

Private roads within mandated non-attainment areas for suspended particulate shall be paved. Private roads in all other areas may be allowed to provide only an all-weather driving surface. The traveled way of a private road shall be designated as a fire lane under the Uniform Fire Code, as amended. Spokane County will not maintain private roads.

In cases where private roads are permitted the following conditions must be met:

1. A title notice has been approved and recorded with the County that provides for maintenance of the private roads and associated parking areas by owners in the development. The title notice shall include language indicating that the county is not responsible for maintenance of the private road, and
2. A ten (10) foot easement shall be provided for on each side of the roadway for roadway maintenance and utilities, and
3. Provision is made for the roads to be open for emergency and public service vehicle use, and
4. The private roads will not obstruct public road circulation.

Private road design plans, drainage studies, drainage plans and appropriate calculations shall be submitted by the Sponsor to the County Engineer prior to construction of the road. All submittals shall bear a certification by the Sponsor's Design Engineer that they were prepared in conformance with and meet the requirements of these Design Standards and all other applicable laws and regulations. Prior to private road construction, the Sponsor must acquire acceptance of a private development drainage plan. Submittal requirements and procedures shall be according to Section 5.01.

The Sponsor shall submit record drawings of private road and drainage improvement construction to the County Engineer. All record drawing submittals shall bear certification by the Sponsor's Construction Engineer that construction was performed in conformance with these standards, the provisions for Section 9.10 and the Spokane Regional Stormwater Manual.

Spokane County does not furnish, install, or maintain signs for private roads including stop signs or street name signs for private roadways intersecting public roads. The owner may install their own signs in accordance with the MUTCD, but must have approval from the County Engineer when installing signs at intersections with public roads. Prior to installing signs at the private road intersecting with a public road, an approach permit shall be obtained. Private roads intersecting arterials or collectors shall have a stop sign. Private roads intersection local access public roads shall have a yield sign unless sight distance analysis (per AASHTO) requires a stop sign.

### **3.23 PRIVATE ALLEYS**

Privately owned alleys may be constructed to provide secondary access to urban, residential lots. An alley must be sixteen feet wide, paved, and must be located within a minimum twenty-six foot wide easement or private right-of-way. The alley shall connect to a public or private road at each end. The intersection of an alley with a public road shall conform to the Standard Drawing entitled "Cement Concrete Approaches". Prior to final plat approval, the developer must provide an agreement for the maintenance of private alleys.

Alley design shall conform to the design standards for a private road shown on Table 3.03. Private alleys are designated fire lanes as described in the current edition of the Spokane County Standards  
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### **3.24 DRIVEWAY APPROACHES**

Approaches shall be constructed to define the access openings in accordance with the Spokane County Standards for Road and Sewer Construction and Standard Plan sheets entitled "Cement Concrete Approaches" or "Rural Road Approaches", as appropriate. Driveway approaches must provide access to an off road parking area located on private property. The driveway shall be of sufficient length so a vehicle in the driveway does not project into the road right-of-way, sidewalk, or pathway. Driveway approaches shall be constructed to avoid interference with existing drainage inlets, culverts, road lighting standards, utility poles, traffic regulating devices, fire hydrants or other public facilities. The applicant shall bear the cost of relocating any such public facility. The agency holding authority for the particular structure shall decide how the facility will be relocated. Where the County Engineer deems that these standards will not provide the proper control of access or safely provide for the traffic using the street additional requirements may apply to insure public safety. All driveways must demonstrate adequate sight distance.

#### **Urban Residential Approaches**

Private driveways may serve a maximum of three residential lots. The total width of all driveway approaches on a road for any ownership shall not exceed 50% of the frontage of that ownership along the road and shall not be more than two in number. Refer to the Standard Plan entitled "Cement Concrete Approaches" for approach dimensions. Any project or alteration of the existing approaches will require conformance with these standards along with replacement of any unused approaches with standard curb, gutter, and sidewalk. Driveways shall not be constructed, reconstructed, or altered to be within 20 feet of the end of a curb return for an intersection. Driveway approach grades within right of way shall not exceed 8% (a rise or descent of 8 feet in 100 feet) in the urban area.

#### **Urban Commercial Approaches**

These approach standards are general in nature and pertain mainly to local access road situations. Arterials, railroad crossings, signalized intersections, channelization, and findings from a specific traffic analysis may result in superseding requirements. Refer to the Standard Plan entitled "Cement Concrete Approaches" for approach dimensions.

Where the existing curb, gutter, or sidewalk is not continuous along the road frontage, the Project Sponsor shall construct the missing improvements. Driveways and site development shall be arranged to allow vehicles to exit without backing out into the roadway. Driveways shall not be constructed, reconstructed, or altered to be within 30 feet of the end of a curb return for an intersection or within 30 feet of a theoretical curb return end in standard location, if not present. Driveway approach grades within right of way shall not exceed 8% (a rise or descent of 8 feet in 100 feet) in the urban area. Drainage from private driveways that connect to public roads shall be controlled to prevent stormwater runoff from entering the public right-of-way. The spacing between driveway approaches in the curb line of ownerships or leaseholds shall not be less than

ten feet for commercial uses nor less than fifteen feet for industrial uses measured parallel with the frontage. Shared approaches will be encouraged to access commercial local access roads and limit number of approaches on arterials.

### **Rural Approaches**

Refer to the Standard Plan entitled "Rural Road Approaches" for approach dimensions. Driveway approach grades within right of way shall not exceed 2% ( a rate of rise or descent of 2 feet in 100 feet) in rural areas. For shouldered roads with ditches, storm drainage shall be passed under a driveway by a culvert pipe. A suitable warning marker shall be placed at each end of the culvert. The culvert shall be corrugated metal pipe and a minimum of 12 inches in diameter (or larger as determined by the County Engineer to accommodate the anticipated flow of water). Culvert ends must be beveled to the slope (4:1) that are within the clear zone; culvert sizes 12" – 24". Culverts over 24" within clear zone require roadside safety design. Driveways shall not be constructed, reconstructed, or altered to be within 80 feet of any road intersection.

## 4.00 3-R DESIGN STANDARDS

### 1. GENERAL

A publicly-funded road project becomes 3-R when the proposed improvement consists of resurfacing, restoration, and rehabilitation of the existing pavement. The purpose of these projects is to preserve and extend the service life of the roadway. They also result in enhancing the safety of the traveling public.

Projects, classified as 3-R, involve work on an existing roadway surface and/or subsurface. Their purpose includes extending the service life, providing additional pavement strength, paving existing gravel roads, increasing skid resistance, improving the ride of the roadway, and enhancing its safety. A project may be considered 3-R if no more than 50 percent of the project length involves vertical or horizontal alignment changes. To be considered 3-R, the road cannot be widened more than one traffic lane. All projects that are not qualified as a 3-R project must meet design standards for new construction.

Normally, project sponsors make 3-R improvements within the existing right of way. The Sponsor should consider acquiring right of way and/or easements, if practical.

Survey monuments shall be perpetuated in accordance with the "Land Survey Standards" sections of the manual.

### 2. DESIGN STANDARDS:

It is desirable that 3-R projects be designed to meet the standards for new construction. However, if for reasons such as environmental concerns, social impact, or cost, it is impractical or impossible to meet new construction standards, the Project Sponsor should make a careful analysis of the alternatives. The analysis should consider adjacent roadway sections, future improvements, and existing conditions. If meeting the new construction standards is unreasonable, improvements in roadway widths should still be considered.

- A. Design Speed - The County Engineer will set the design speed for 3-R projects.
- B. Super elevation - To provide for the same degree of safety and comfort on 3-R projects as on any other, super elevation, including transitions, should be provided on projects with a design speed greater than 35 mph.
- C. Roadway Width - The minimum roadway surfaced width (W) for 3-R projects is 32 feet for rural arterial, 28 feet for rural local access, 32 feet on a curbed road.
- D. Ditches - Fill slopes and slope ditches shall not be steeper than 3:1. Flatter slopes are desirable.

- E. Alignment - Alignment improvements should be undertaken where the number of accidents is high, and where previously installed warning signs, markings, or other devices have not proven effective. If existing horizontal and vertical alignments are to be retained, a careful analysis should be undertaken to provide adequate signing and marking.
- F. Clear Zone - For safety, it is desirable to provide a roadside recovery area that is as wide as practical. The designer must give particular attention to the clear zone at identified high roadside accident locations. An adequate clear zone at horizontal curves at the end of a downgrade, should be provided if practicable. The clear zone distance can be determined using Figure 3.16. The Sponsor should relocate utility poles, luminaries, and sign supports or make to break away, if necessary, to provide for safety.
- G. Bridge - A bridge to be replaced on a 3-R project shall be designed to new construction standards.
- H. Curb ramps - Curb ramps shall be provided on 3-R projects where curbs and sidewalks are provided.



## **5.00 PROJECT APPLICATION AND CERTIFICATIONS**

### **5.01 APPLICATION PROCEDURE**

Submittal requirements and procedures shall be as prescribed by the County Engineer. The application and certification procedure for public and private road construction shall be as prescribed by the County Engineer and shall generally include, in sequence, the following items:

1. Conduct a Pre-Design Meeting with the County Engineer to reach concurrence on the design parameters (including connectivity and road type) and drainage concept,
2. If needed, conduct a joint site visit by the Sponsor's Design Engineer and the County Engineer,
3. Submit and receive approval of any design deviations,
4. Submittal and approval of the plans and calculations by the Sponsor's Design Engineer,
5. Review of the submittal and acceptance of the plans and calculations by the County Engineer,
6. Construction and inspection by the Sponsor's Construction Engineer,
7. Final inspection by the Sponsor's Construction Engineer and the County Engineer,
8. Submittal of certification and record drawings by the Sponsor's Construction Engineer.

The Sponsor's Engineer shall schedule a pre-design meeting with the County Engineer. The purpose of the Pre-Design meeting is to identify the major design parameters prior to design, review the general design concepts proposed by the Sponsor's Engineer, and reach concurrence on design concepts and design parameters.

It is strongly recommended that any proposed design deviations be applied for and approved prior to submittal of final road and drainage plans. The design deviation application shall be submitted in a format prescribed by the County Engineer.

The Sponsor shall obtain acceptance of the plans and calculations from the County Engineer before the start of construction and before recording the plat. The County Engineer will require that a Temporary Erosion/Sedimentation Control Plan be approved prior to starting construction. Construction within public ROW and connection to public roads require permits per section 9.00.

The Sponsor's Surveyor shall comply with procedures for perpetuation of survey monuments in accordance with the "Land Survey Standards" section of this manual.

The County Engineer relies upon the certification and approval of the road and drainage plans and calculations by the Sponsor's Engineer for approval of the plat. The County Engineer's acceptance of the plans shall not relieve the Sponsor or the Sponsor's Design Engineer from any liability related to portions of the design which are not in conformance with these Standards or do not follow good engineering practice.

The plans, basin maps and calculations shall be signed, sealed, and dated by the Sponsor's Design Engineer. The cover sheet of the plan set and the cover sheet of all the calculations shall bear the certification, which reads:

"The design improvements shown in this set of plans and calculations conform to the applicable editions of the Spokane County Standards for Road and Sewer Construction and the Spokane County Guidelines for Storm Water Management. The Spokane County Engineer has approved all design deviations. I approve these plans for construction."

The Sponsor shall reimburse the County for all costs incurred for pre-submittal meetings, submittal reviews, site-visits, and any other work associated with a developer's project. Costs shall be assessed as outlined on the latest fee schedule adopted by the Board of County Commissioners, and in accordance with the Fee Agreement signed by the Sponsor.

For each construction phase, the Project Sponsor's Engineer shall provide construction inspection, which complies with the requirements of Section 9.04, and upon completing the construction inspection shall provide "Record Drawing" which comply with the requirements of Section 9.10 of these Standards.

## **5.02 GENERAL FORMATTING**

The general format, number of copies, and application processes shall be as follows:

### **1. PRIVATE DESIGN:**

Original sheets shall be good quality reproducible, ink on mylar. Also, the designer shall submit the computer-drawing files in AutoCAD .DWG format.

- A. All plan sheets shall be in size 24 inches x 36 inches.
- B. First and subsequent applications shall contain one sets of prints of road plans, typical cross sections, profiles, and detail sheets. A drainage plan and drainage calculation shall also be submitted as required in the Spokane Regional Stormwater Manual.
- C. The first application shall contain a letter signed and sealed by the Sponsor's Surveyor that a thorough search has been made for survey monuments. He/she shall indicate that all found monuments are properly

referenced in accordance with current applicable state laws. A copy of references shall be filed in the County Engineer's Office.

- D. The final application shall contain a mylar set of corrected road plans, profiles, typical cross sections, detail sheets, and drainage plans and calculations. If the Sponsor or his engineer desires the County to return an accepted set of reproducible plans, the Sponsor should also submit a set of mylar plans. Upon the County Engineer's acceptance of the final application, the County Engineer will retain the original, using it to make copies for public inspection and distribution as required. The acceptance of construction plans shall expire two years from the acceptance date shown on the plans. It may be extended for an additional two years at the option of the County Engineer. Before the extension of acceptance, the Sponsor's Engineer shall revise the plans to reflect current standards unless an allowance is made by the County Engineer.

## **2. COUNTY DESIGN:**

Procedures for county design shall be as required for coordination and for approval by funding authorities. Survey monuments shall be perpetuated in accordance with the "Land Survey Standards" sections of this manual.

### **5.03 DRAFTING STANDARDS**

1. Fonts- Lettering shall be legible to be easily read and understood by the reviewer. The lettering shall be of sufficient size and scale to produce clear, readable images when scanned digitally by an optical scanner. Submitted plans not meeting these criteria will be returned to the Sponsor for correction.
2. Lines and Symbols- Standard drafting lines and symbols are shown on the Standard Plans entitled Spokane City/County Drafting Standards. Both the City of Spokane and Spokane County have adopted these conventions. All drawings submitted for review shall use these Standards. Symbols and line types for plan features not available in the Standards shall be described in a legend on each plan sheet.

### **5.04 PLAN**

Plans may be comprised of more than one set of project drawings each depicting separate items of work. Plans shall include the following:

1. The first sheet of the plans shall include a project title, vicinity map, an index of plan sheets, the engineer's certification statement, and signature block containing approval signatures of both the Project Sponsor and his Engineer.
2. Road alignments with 100' stationing, reading from left to right, and stationing at points of curve, tangent, and intersections, with appropriate ties to existing road surveys and stationing, section corners, quarter corners, and the horizontal

control net established by the County Engineer. Stations shall increase from west to east and from south to north.

3. Section, township, and range.
4. Bearings on the road centerline, keyed to an associated plat map.
5. Curve data including radius, delta, arc length, and semi-tangent length, on all road centerlines and curb returns.
6. Right of way lines, width for proposed road, intersecting roads, and existing road improvements with dimensions.
7. All topographic features within right of way limits or future right of way limits and sufficient area beyond to resolve questions of setback, slope, drainage, access onto abutting property, and road continuations.
8. All existing utilities.
9. All proposed water and sewer utilities that will be designed and constructed.
10. Identification of all roads and adjoining subdivisions.
11. A Signing and Pavement Marking Plan. (See Section 3.12)
12. Existing and proposed drainage features, showing direction of flow, size, and kind of each drainage channel, pipe, and structure and other requirements as specified in the Spokane Regional Stormwater Manual.
13. Minimum Scale: 1" = 50'. However, 1" = 100' shall be optional for development of lots one acre or larger. Details for clarification may be shown on a convenient scale. A scale of 1" = 20' may be required for urban arterial streets where detail is sufficiently dense to cause a "cluttered" drawing at a smaller scale.
14. A north arrow.
15. As a minimum, one new control monument shall be set at each end of a new road and intermediate monuments as required under 6.02.
16. Project beginning and ending designation with stations.
17. A title block to include:
  - A. The project name
  - B. County Project Number
  - C. Sheet number

- D. Road names
  - E. Road limits
18. All found and referenced survey monuments.
  19. Section and lot lines
  20. Standard symbols as shown on Standard Plan entitled Symbols.
  21. Beginning, middle, and ending elevations of curb returns.
  22. Other data necessary for the specific project.

#### **5.05 NOT USED**

#### **5.06 PROFILE ELEMENTS**

Profile elements shall include the following:

1. Original ground line at 100' stations and at significant ground breaks and topographic features based on field measurement accurate within 0.1' on unpaved surface and 0.01' on paved surface.
2. A final road and storm drain profile. The stationing shall be the same as the horizontal plan, reading from left to right. It shall include stationing of points of curve, tangent, length, and point of intersection of vertical curves, with elevations to 0.01'.
3. Profiles for curbed roads shall show the tops of both curbs and the centerline clearly labeled. Profiles for shouldered roads shall show the centerline only.
4. On a grid of numbered lines, a continuous profile shall be shown for both existing and proposed improvements.
5. Grade and vertical curve data, all profiles.
6. The datum used and all benchmarks, which must refer to established control when available. (See Section 6.02)

#### **5.07 NOT USED**

#### **5.08 TYPICAL CROSS SECTION**

Typical cross sections shall include the following:

1. The dimensions of traffic lanes, shoulders, gutters, sidewalks, swales, depths, planting strips, easements, and right of way, etc.
2. The cross slope of all elements, such as, the pavement, ditches, swales, gutters, sidewalks, planting strips, etc.
3. Type of curb.
4. Dimensions of structural section material layers.
5. Retaining walls where required.
6. A separate full width roadway typical section for each street or portion of the street that differs significantly. Station limits shall be shown.
7. Show the location of the clear zone requirements and any roadside safety features relative to the edge of the traveled way.
8. All other data necessary for a specific project.

#### **5.09 NOT USED**

#### **5.10 DRAINAGE PLAN**

A drainage plan is required by the Spokane Regional Stormwater Manual. A private developer may submit the drainage plan integrally with the road plan and profile, if space permits. Otherwise, he/she shall submit it on separate plan and data sheets.

## **6.00 LAND SURVEY STANDARDS**

### **6.01 REGULATIONS**

1. Surveys shall conform to all applicable state and local regulations.
2. Prior to any construction within County rights-of-way, a surveyor shall conduct a thorough search for all survey monuments. Any found monuments shall be referenced in accordance with current applicable state laws. A copy of the references shall be filed in the office of the County Engineer.

### **6.02 MONUMENTATION**

1. The responsible surveyor shall set permanent monuments with his/her registration number as follows:
  - A. For placing new or replacement of section corners, quarter corners, closing corners, witness corners, and meander points that have been disturbed or destroyed, the minimum acceptable monument is a 3/4 inch inside diameter iron pipe or a #4 steel reinforcing rod, 24 inches in length. The monument shall be marked in conformance with state laws and regulations. Any of these corners in paved roads shall be covered by a Spokane County standard cast iron monument case. Monument cases are shown on the Spokane County Standard Plan sheet entitled "Monument Case and Cover".
  - B. For placing new or replacement of disturbed road centerline angle points, curve points, and road intersection points, the minimum acceptable monument is a 1/2 inch inside diameter iron pipe or a #4 steel reinforcing rod, 18 inches in length. On principal arterials, monument cases and covers shall be set to protect the monuments. All monuments in other paved roads shall be set flush with the road surface.
  - C. For placing new or replacement of all permanent monuments not covered above, the minimum acceptable monument is a 1/2 inch inside diameter iron pipe or a #4 steel reinforcing rod, 18 inches in length
  - D. If it is impossible to set the above monuments, the County Engineer may approve an alternative monument.
2. Each monument set according to 6.02 1A through 6.02 1D shall have at least three reference points. The reference points may consist of, in order of preference, cross on curbs, bearing trees, property corners or alternate approved by County Engineer.

### **6.03 HORIZONTAL CONTROL NET**

A horizontal control net established by the Spokane County Engineer shall be the mapping base for all surveys lying within its boundaries. All surveys done within this net shall conform to the degree of accuracy required under applicable state laws with adequate supplemental information as required by the County Engineer to ensure accuracy.

### **6.04 TEMPORARY BENCH MARK**

The surveyor shall provide a temporary benchmark along the roadway every one thousand feet. These temporary bench marks shall be based on a datum plane approved by the County Engineer. The surveyor shall submit field notes or sealed statement insuring work according to third order accuracy. Please refer to Washington State Department of Transportation Standards.



## **7.00 BRIDGES AND OTHER STRUCTURES**

### **7.01 PRINCIPAL REFERENCE FOR BRIDGES**

Except as specified below, Spokane County bridges on public roads shall be designed and constructed according to the latest edition of "LRFD Bridge Design Specifications", adopted by American Association of State Highway and Transportation Officials (AASHTO) including all interim addenda. Plans and structural computations shall be submitted for approval of the County Engineer before construction begins. All new bridges shall be designed to carry an AASHTO HL 93 live load or greater.

1. The bridge roadway shall comprise the full width of the road being served. This includes the traveled way, curb, sidewalk, walkway, bike lanes, equestrian lanes, and/or shoulders. Requirements of utilities shall be duly considered.
2. Where typical speed is 35 MPH or higher and significant pedestrian, bike and/or horseback traffic can be expected, the Engineer may require that the lane for the secondary modes be separated from motor vehicle traffic by use of a bridge traffic barrier and further protected by a pedestrian rail at the outer edge.
3. The width of a bridge shall be the greater of the design roadway width or the existing roadway width but not narrower than 28 feet.
4. Traffic and pedestrian railings or combination traffic-pedestrian railings shall meet AASHTO specifications.
5. Overhead vertical clearances on bridges serving arterial roads shall be no less than 16.5'. Other roads may have a minimum vertical clearance of 15 feet.

### **7.02 OTHER BRIDGE DESIGN CRITERIA**

Criteria under other recognized road and bridge classifications, such as those of the Federal-Aid Rural Area Design Standards, may be applied under conditions deemed appropriate by the County Engineer.

### **7.03 RETAINING WALLS AND OTHER STRUCTURES**

A preliminary design meeting will be held by Spokane County with the proponent to discuss applicable design standards for retaining walls and other structures. In the absence of other agreed upon standards, analysis and design of retaining walls and other structures constructed within Spokane County right-of-way and/or maintained by Spokane County shall conform to the requirements of the "LRFD Bridge Design Specifications", adopted by American Association of State Highway and Transportation Officials (AASHTO) including all interim addenda. Plans and structural computations shall be submitted for approval of the County Engineer before construction begins.

## **8.00 UTILITIES**

### **8.01 FRANCHISING POLICY**

Utilities to be located within the County road right-of-way shall be constructed according to current franchise and permit procedure and according to these standards. In their use of the right of way, utilities shall be given consideration only after the requirements of the road are met. These requirements are to provide safe, efficient and convenient passage for motor vehicles, pedestrians, and other traffic. Aesthetics shall be a consideration. As a matter of policy, Spokane County strongly encourages utility companies to place electric lines underground, particularly in urban development.

### **8.02 STANDARD UTILITIES LOCATIONS**

Utilities within the right of way on new roads shall be located as shown on Standard Plan entitled Utility Locations. The locations shown on the standard plan shall be used on existing roadways where topography, utilities, or storm drains do not conflict. Where existing utilities or storm drains are in place, new utilities shall conform to these Standards as nearly as practical and yet be compatible with the existing installations.

Exceptions may be approved when necessary to meet the special requirement of overhead utilities when right of way space is limited in planned unit developments, manufactured home parks, multifamily developments and commercial developments.

1. Notwithstanding other provisions, underground systems shall be placed at least five feet away from road centerline and where they will not otherwise disturb existing survey monuments.
2. Underground utilities that can use a joint trench shall have the option of occupying any other utility company's standard location if that company is a participant in the joint trench installation.
3. Any utility company may use another utility company's standard location provided they obtain approval from that company. A copy of the approval shall be furnished to the County Engineer.

### **8.03 SCHEDULING OF UTILITIES INSTALLATION, RELOCATION AND INSPECTION**

When possible, utilities, including service crossings, shall be installed or relocated before the start of road construction. If planned road cuts and fills are large or if the location of road elements cannot be clearly shown in advance, the utility company will coordinate the relocation of utilities with the contractor before construction. Otherwise, such utilities and connections shall be installed or relocated after the subgrade has been completed but before surfacing has been placed.

As a matter of policy, Spokane County discourages utility trenching or transverse cuts in County roads. Cutting or trenching roads that have been reconstructed within the previous five years will not be permitted unless it can be shown that alternatives are not feasible. Possible alternatives are boring, jacking, relocating outside the paved area, or installing the utility just before reconstruction or overlay of the road. For more information on utility cut requirements please refer to Technical Reference D – Utility Cut Policy.

In instances where trenching or cutting is permitted, pavement patching shall include:

1. cutting the existing pavement
2. removal of existing pavement
3. preparation and compaction of subgrade
4. placement and compaction of aggregate base material
5. application of tack coat and construction of the asphaltic concrete pavement "patch"

This work shall conform to the applicable sections of the Washington State Department of Transportation Standard Specifications. On arterial roads, the utility company may be required to backfill the trench in paved roads with controlled density fill to the top of the adjacent crushed surfacing. This requirement may be applied on all paved roads during cool or inclement weather.

Monumentation: The contractor, according to the "Land Survey Standards" section of these standards, shall protect existing survey monumentation.

## **9.00 PERMITS AND INSPECTION**

### **9.01 APPLICATION**

Any party that intends to work within or impact a County right-of-way, including connecting a road or driveway to a county road, shall first obtain a permit by filing a written application with the County Engineer. Such application shall be made on a Spokane County form provided for that purpose, and shall include:

1. The name and address of the applicant.
2. The name and address of the owner of the property abutting the road and where the work is proposed.
3. The exact location of the proposed work, giving the road address or legal description of the property involved.
4. A detailed plan accurately showing:
  - A. The dimensions of the abutting property.
  - B. The dimensions and locations of existing or proposed driveways.
  - C. Utility poles.
  - D. Hydrants.
  - E. Road light standards.
  - F. Trees within the limits of the frontage of said property.
  - G. Other pertinent features.
5. The plan shall also show the location of buildings, loading platforms and off-road parking facilities being served or to be served by such driveways.
6. The County Engineer may require, at his discretion, the filing of any other information when he feels such information is necessary to properly enforce the provisions of this section.
7. The County Engineer will not approve a plan nor issue a permit where it appears that the proposed work conflicts with the provision of this standard or any other ordinance or resolution of Spokane County; nor shall issuance of a permit be construed as a waiver of the Zoning Ordinance or other ordinance requirements concerning the plan.

## 9.02 BASIS FOR CONTROL OF THE WORK

Work shall be done to the satisfaction of the County Engineer and according to approved plans (Section 5.00). This includes work done in the existing, proposed, or future public right of way. It applies to work by a private project sponsor, by county forces, or by a county contractor. It is emphasized that no work may be started until such plans are approved. The County Engineer shall approve any revision to the plans before the proposed revision is constructed.

The County Engineer shall have authority to enforce the Standards just as other referenced or pertinent specifications. He/she will appoint engineers, assistants, and inspectors as necessary to control and inspect the work and they will exercise such authority as the County Engineer may delegate.

### 1. PERMIT REQUIRED

No person, firm or corporation shall commence work or permit any other person, firm, or corporation to commence work on the construction, alteration, repair, removal, cutting and/or paving of any road, alley or other public place in Spokane County without first obtaining a written permit and approved plans from the County Engineer.

The Sponsor shall be responsible for the County costs incurred for inspection. The costs shall be assessed as outlined on the latest fee schedule adopted pursuant to Board of County Commissioner's Resolution No. 80-1592 or as the same may be amended.

### 2. TEMPORARY TRAFFIC CONTROL

#### Traffic Control Plans (TCP)

Before commencing work, the project sponsor shall prepare and submit a TCP for each major phase of the work to the County Engineer for review and approval. As work progresses, the Sponsor shall revise the work zone to changing conditions. Changes that revise the intent of the previously approved TCP shall be submitted for approval. Note; a TCP may be required even if the work does not impact traffic. It is encouraged that the Sponsor set up proper work zones for projects not on county right of way but open to public travel.

#### Standards

All TCP's and work zones shall conform to Spokane County's Guidelines for Temporary Traffic Control, this can be found at:

[www.spokanecounty.org/engineer/](http://www.spokanecounty.org/engineer/)

Select "TRAFFIC" link

Then select "TRAFFIC CONTROL PLAN SUBMITTAL"

Or contact the Spokane County Engineers office.

### **9.03 NOT USED**

### **9.04 ROAD CONSTRUCTION INSPECTIONS**

The Sponsor's Engineer or a designated representative shall perform inspections on all road construction generated by a land use action.

The County Engineer may elect to perform the construction inspection on public road improvements generated by a building permit.

### **9.05 NOT USED**

### **9.06 CONSTRUCTION INSPECTION NOTIFICATIONS AND RECORDS**

The Sponsor's Engineer shall be responsible to ensure that construction of roads and appurtenances is according to county accepted project plans, County General Provisions, the Standard Specifications, and applicable portions of the WSDOT Construction Manual. County forces may make random visits to public road construction sites, as deemed necessary. Random visits are to ensure a quality construction inspection process and do not express or imply approval or disapproval of the contractor's work. The County Engineer shall have access to all construction inspection records and reports.

The Sponsor's Engineer shall submit all construction change orders that propose changes to the accepted plans or specifications to the County Engineer for his review and approval. The County Engineer will use a fast-track system for change order approvals when the progress of construction makes it infeasible to wait for formal approval.

If, in the opinion of the County Engineer, the Sponsor's Engineer fails to satisfactorily perform the proper inspection, testing, and record-keeping duties, the County may take action as provided for in Section 1.10 "Compliance Review".

Prior to scheduling a final inspection with Spokane County, the Sponsor's Engineer shall:

1. Submit all construction records to the County Engineer. This shall include but not be limited to, Daily Inspector's Reports, correspondence, manufacturer's certifications, material test reports, and Record Drawings as required in Section 9.10.
2. Ensure that all previously identified project deficiencies have been corrected.

The Sponsor's Engineer shall schedule a final inspection meeting between the Sponsor's Engineer and the County Engineer prior to establishment of the roads by Spokane County. Deficiencies found shall be corrected by the Sponsor prior to road

acceptance. At the time of establishment of the roads by the Board of County Commissioners, the County will assume responsibility for road maintenance and operation. The County will then release the Sponsor's Engineer from responsibility with regard to construction inspection.

#### **9.07- 9.08 NOT USED**

#### **9.09 COUNTY FORCES AND COUNTY CONTRACT ROAD INSPECTION**

Representatives of the County Engineer will inspect road construction done by county forces or by county contract.

#### **9.10 RECORD DRAWINGS**

During construction, the Sponsor's Surveyor and/or Construction Engineer shall record any changes to the plans.

All substantive differences shall be noted on the approved final road and drainage plans and shall be labeled Record Drawings. The following statement shall be lettered on the Record Drawings and stamped and signed by the Sponsor's Surveyor and/or Construction Engineer certifying the Record Drawings: "I have reviewed the construction and to my knowledge find it to be in substantial conformance with the approved certified plans and Standard Specifications except as noted."

When changes to the design are necessary, the Sponsor shall be responsible for obtaining approval of plan changes from the Sponsor's Design Engineer. The Sponsor shall forward a copy of the approved plan changes, and any related calculations, to the County Engineer.

## **10.00 SURETY**

### **10.01 PERFORMANCE SURETY**

#### **1. Road and Drainage Improvements**

The Surety will generally address the construction and installation of all public road, private alley, and private road improvements, including but not limited to the roadway, drainage improvements, utility work within County right-of-way, monumentation, construction inspection, and other costs. For commercial building permits, the guarantee shall apply to improvements in the public right-of-way, and drainage improvements, located in tracts or easements on the project site, which serve the public right-of-way. In any case, the Surety shall be in an amount equal to at least 110% of the County Engineer's estimate. The Sponsor's Engineer shall provide Spokane County with quantities on the provided spreadsheet. Then Spokane County will apply unit pricing to arrive at the bond amount

In order to obtain Final Approval of a Project (either a Land Use Action such as a Plat, Short Plat, or Binding Site Plan, or a Certificate of Occupancy for a Commercial Project), a private Sponsor must select one of these options: (1) Post a Surety prior to construction; or (2) Partially construct the Project and provide a Surety; or (3) Complete construction of the Project, certify the construction, obtain the County Engineer's acceptance of the Project Certification Package, and post a warranty Surety prior to final approval of the Project.

The Sponsor is not required to post a Surety prior to Final Approval. However, the County Engineer will only recommend Final Approval if either the required improvements have been constructed and certified by the Sponsor, and accepted by the County Engineer, or a Surety acceptable to the County Engineer has been posted.

The Surety that is posted with the Spokane County Engineer for compliance with this section shall conform to the following conditions:

- a. The surety shall be of a form approved by the Prosecuting Attorney's Office and acceptable to the County Engineer. The surety amount shall be in United States currency.
- b. Acceptable surety instruments are:
  - Cash Savings Assignment, held by a duly chartered Financial Institution;
  - Letter of Credit issued by a duly chartered Financial Institution; or
  - Surety Instrument ("Bond") issued by a duly chartered Bonding Company.
- c. The term of the surety shall be for two years from the date of the County Engineer's Plan acceptance. The surety must automatically renew until all improvements are constructed and certified, as required herein. Also the



warranty can not be released until the roads have been established for County maintenance.

- d. At the discretion of the County Engineer, the surety may be reduced with satisfactory progress on the project. The surety shall not be reduced below \$10,000, or 20% of the original surety amount, whichever is greater.
- e. A performance surety will not be required if the improvements are constructed and certified according to these standards prior to final development approval.

#### **A. Performance Surety Prior to Construction**

The Sponsor may choose to post a surety for the entire estimated construction and inspection cost in order to obtain Final Approval. The County Engineer shall estimate the amount of the surety.

Under this option, Final Approval will not occur until the Design Documents have been accepted by the County Engineer's Office, and an acceptable surety has been posted.

#### **B. Partial Construction Before Final Approval**

The Sponsor may choose to construct a portion of the required road and drainage improvements in order to obtain Final Approval. The amount will be calculated from the original surety estimate, to account for such elements as changed quantities, revised unit prices, construction of the remaining work through Public Works contracting procedures, project inspection and certification, etc.

Under this option, Final Approval will not occur until:

1. The Sponsor's Engineer has submitted Inspection Reports for the Project (the "Certification Package") to the Spokane County Engineer for the constructed improvements constructed to date;
2. The Spokane County Engineer has provisionally accepted the Certification Package; and

The Sponsor has posted a surety for any remaining road and drainage improvements (public or private), in accordance with the edition of the Spokane County Standards for Road and Sewer Construction (the "Standards") applicable to the Project, and the accepted plans on file at the Spokane County Engineer's Office.

#### **C. Complete and certify construction before Final Approval**

The Sponsor may choose to construct all of the required road and drainage improvements prior to obtaining Final Approval. Under this option, Final Approval will not occur until such time as:

1. All required improvements for the Project are constructed in accordance with the accepted plans on file at the Spokane County Engineer's Office; and
2. The Sponsor's Engineer has submitted complete Certified Record Drawings and associated Inspection Reports for the Project (the "Certification Package") to the Spokane County Engineer; and
3. The Spokane County Engineer has accepted the Certification Package; and
4. The Sponsor has posted a Cash Savings Assignment, Letter of Credit, or Surety Instrument to warranty the construction and materials for any required public road and drainage improvements, in accordance with the current edition of the Spokane County Standards for Road and Sewer Construction (the "Standards"). The term of the warranty surety shall be as described in Section 10.02.

#### **D. Reductions in Surety; Surety Release**

##### **1. General**

Reductions in the surety will only be made if:

- a. The Sponsor's Engineer has submitted inspection reports for the project (the "Certification Package") to the Spokane County Engineer for the improvements constructed to date; and
- b. The Spokane County Engineer has provisionally accepted said Certification Package; and
- c. The reductions do not exceed 80 percent of the full surety amount.

##### **2. Substantial Completion**

Once the Substantial Completion Surety has been posted, the County Engineer may, at his sole discretion, recommend Final Approval to the Board of County Commissioners. The County Engineer's recommendation is not to be construed as a guarantee or warranty of any sort that the Board of County Commissioners will, in fact, grant Final Plat Approval.

##### **3. Surety Release**

The County Engineer will release the performance surety in full only when all of the following conditions have been met:

- a. The Sponsor's Construction Engineer submits the required certification that the project has been constructed in substantial conformance with the certified construction plans and specifications.
- b. The Sponsor submits certified "Record Drawings" and project records of all road and drainage improvements constructed for the project.
- c. The Sponsor has paid all costs incurred by the County in full.
- d. All monuments have been reset and referenced by a surveyor.
- e. (Public Roads only) The County has received a warranty surety as specified in Section 10.02 of these standards.
- f. (Public roads only) The roads have been established by resolution of the Board of County Commissioners.

## **2. Sureties for Sanitary Sewer Improvements**

### **A. Plats**

For Plats, Short Plats, or other land use actions requiring a Spokane County Utilities sewer collection system final approval will only be recommended if either the required improvements have been constructed by the Developer, accepted by the Utilities Division (to include Record Drawings), and secured at the warranty amount, or if a surety acceptable to the Utilities Director has been posted.

If Public off-site Sewer Extension is not required:

The Sponsor shall post a surety equal to the amount estimated by the Utilities Department for the on-site sewer improvements, prior to Final Approval.

If Public off-site Sewer Extension is required:

The Sponsor shall post separate sureties equal to the amount estimated by the Utilities Division for the on-site sewer improvements and for the off-site extension, prior to Final Approval.

When the construction has passed the air test and mandrel test, the guarantee may be reduced to 50% of the initial amount.

When the Utilities Division has accepted the sewer construction for operation and maintenance, and Record Drawings have been approved, the guarantee may be reduced to 25% of the initial amount. This 25% will be held as security for the duration of a warranty period. If either of the initial guarantee amounts exceed \$100,000, then the security will be 20% of the respective initial amount.

## **B. For Commercial Projects:**

### Private Sewer System:

No surety is required for private sewer systems. Plans must be submitted to the Utilities Division and accepted for construction prior to issuance of a Sewer Connection Permit. Inspection of sewer construction must also be scheduled through the Utilities Division.

### Public Sewer Extension required:

A surety, acceptable to the County Utilities Director, must be posted prior to sewer construction plans being accepted by the Utilities Division. Sewer connection permits will be issued only when the Utilities Division has accepted the sewer extension construction for operation and maintenance (subject to a one year warranty period) and record drawings have been approved.

## **10.02 WARRANTY SURETY**

The sponsor of a private development shall post a warranty surety for improvements within or serving County rights-of-way with the County Engineer before:

1. The acceptance of construction by the County Engineer; and
2. The establishment of any public road(s) by the Board of County Commissioners;  
and
3. The release of the performance surety.

The Warranty Surety shall conform to the following:

- A. The surety for improvements within public rights-of-way shall remain in effect for two years from the date of certification of the roads.
- B. The warranty surety shall be for an amount equal to 20% of the County Engineer's estimate of the construction costs or \$10,000, whichever amount is greater. The County Engineer, at his/her discretion, may reduce the warranty surety amount for projects valued at less than \$20,000.
- C. The Warranty Surety shall guarantee against defects in road construction, utility work performed within the County right-of-way, and/or drainage facilities as determined by the County Engineer.
- D. The release of the Warranty Surety for improvements within public rights-of-way shall take place two years from the date of certification of the roads. Thirty days prior to expiration of the warranty surety, the Sponsor shall contact the County to inspect the improvements. Any deficiencies noted must be repaired prior to the surety release. If the inspection is not conducted and the deficiencies are not repaired, the warranty surety shall be renewed by the Project Sponsor until the inspection is conducted and needed repair work is completed.

### **10.03 PERMIT SURETIES**

A surety, commensurate with the extent of work to be done, shall be posted with the County Engineer before the issuance of a permit to work within public roads.

## Introduction

Traffic studies or site impact studies are required by the Spokane County Engineer to examine the demands that development may or may not have on the surrounding transportation system. The need for a traffic study shall be determined on a case by case basis. A list of general guidelines and decision criteria are available in §1.30, Traffic Impact Study, of the *Spokane County Standards for Road and Sewer Construction*.

This Technical Reference has been prepared to provide engineers, planners, and developers with information regarding traffic impact study requirements within Spokane County. It is not intended to be a textbook or all inclusive of the possible scenarios or requirements that may be encountered during a study. It is believed that by following the guidelines and recommendations made within this handout, the time spent during the application and review process may be reduced. Internal site circulation plans may be required if concerns arise that circulation may impact public road traffic flow or safety.

## Scoping

A scoping meeting should be scheduled with Spokane County prior to starting the field work for the study. A minimum of three working days before scheduling the scoping meeting, the proponent's traffic engineer shall send Spokane County a traffic distribution letter, for information on the traffic distribution letter contact Spokane County's Transportation Engineering section. During the scoping meeting, the general requirements of the study will be discussed. It shall be the responsibility of the developer/consultant to initiate and coordinate the scoping meeting. Although not required, Spokane County recommends that a joint scoping meeting with all reviewing agencies be coordinated through the project's traffic consultant. The following is a list of items that shall be discussed during the scoping meeting and recorded on the Traffic Study Scope Worksheet found at the end of this appendix.

1. Project description
  - A. proposed land uses (if known)
  - B. trip generation
  - C. pass-by & diverted trips
2. Project phasing and horizon year
3. Anticipated directional distribution of project traffic.
4. Background projects
5. Background growth rate (non site specific)
6. Affected intersections for study

## Public Participation

Two public meetings shall be held within the project study area. A public scoping meeting shall be conducted by the developer/consultant to allow public input to the

scope of the project and following study. It is anticipated that with the public scoping meetings, additional neighborhood issues will be brought forward and addressed and/or resolved prior to the public hearing.

The second public meeting shall be after the traffic study work is complete and is intended to brief the surrounding neighborhood on the traffic study results. Projects proposed mitigation shall be agreed upon by proponent and all affected agencies before scheduling second public meeting. All costs associated with the public meetings (signs, room rental, notification mailing, etc.) shall be the responsibility of the developer/consultant.

### **Public Notification**

Notice of date, time, place and purpose of the public meetings shall be provided by the following means.

1. One publication in Spokane County's official newspaper at least fifteen (15) days prior to the meeting.
2. Adjacent residents, property owners, neighborhood groups and/or organizations within a four hundred (400) foot radius of the project boundaries shall be notified by a mailing not less than fifteen (15) days prior to the public meeting.
3. Additionally, a sign with dimensions no less than four (4) feet in width and four (4) feet in height and lettering three (3) inches in size shall be erected on the subject property fronting and adjacent to the most heavily traveled public street. The sign must be easily read by the traveling public from the right of way at least fifteen (15) days prior to the meetings. This sign shall announce the date, time and place of the traffic meetings and brief description of the project.

Proper notification and all associated costs shall be the responsibility of the developer/consultant. Notification shall be considered satisfied upon receipt of an affidavit provided by the developer/consultant to Spokane County stating the above requirements have been completed.

### **Traffic Study Report**

The means by which the work of the traffic study is conveyed to others is through the traffic study report. The traffic study report should stand on its own merits. There should be sufficient information and detail to allow the reader to follow the study step by step and draw the same conclusions as the author. The report should be factually based, written from an impartial viewpoint and report all aspects of the traffic study work that was undertaken. In addition, the report should be written such that the lay person, someone not familiar with traffic studies (e.g., political decision-makers and citizens), will be able to understand and follow the process, findings and recommendations.

## TECHNICAL REFERENCE A

### Traffic Studies and Review Procedures

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As a general rule, the traffic study report shall include, but not be limited to, the following.

- I. Title Page
  - A. Name of Project
  - B. Project Sponsor's Name and Address
  - C. Study Preparer's Name, Address and Phone Number
  - D. Date of Study Preparation
  - E. Responsible Engineer's Seal, Signature and Date
  
- II. Table of Contents
  - A. Major Sections
  - B. List of Figures
  - C. List of Tables
  
- III. Executive Summary
  - A. Site Location and Study Area
  - B. Development Description
  - C. Principal Findings
  - D. Conclusions
  - E. Recommendations
  
- IV. Introduction
  - A. Purpose of Report and Study Objectives
  - B. Project Description
  - C. Scope of the Report
  - D. Assumptions
  - E. Methodology
  - F. Description of other known projects (public or private) in the study area.
  
- V. Existing Conditions
  - A. Transportation Network Description
  - B. Existing Zoning
  - C. Existing Traffic Volumes
  - D. Accident History
  
- VI. Proposed Other Development (Background Projects)
  - A. Background Project Description
    1. Vicinity Map
    2. Trip Generation
    3. Trip Distribution
    4. Trip Assignment
  - B. Planned Roadway Improvements
    1. Project Name
    2. Description of Improvements



VII. Proposed Project

- A. Project Description
  - 1. Site Plan
  - 2. Trip Generation
  - 3. Trip Distribution
  - 4. Trip Assignment
- B. Project Phasing and Timing

VIII. Traffic Analysis

- A. Existing Volumes and LOS
- B. Future Volumes and LOS without Project at Each Phase
- C. Future Volumes and LOS with Project at Each Phase
- D. Future LOS with Proposed Improvements at Each Phase
- E. Future Volumes and LOS without Project at Complete Build-out
- F. Future Volumes and LOS with Project at Complete Build-out

IX. Other Analysis

- A. Sight Distance
- B. Queuing
- C. Safety
  - 1. Vehicle
  - 2. Non-motorized (Pedestrian/Bicycle)
- D. Noise
- E. Transit
- F. Non-motorized (Pedestrian/Bicycle)
- G. Analysis of Improvement Alternatives

X. Conclusions

- A. Transportation Impacts
- B. Needed Improvements

XI. Recommendations

- A. Proposed Mitigation (provide conceptual sketch and detailed description of all proposed mitigation)
- B. Proportionate Share Recommendations
- C. Other Recommendations

XII. Appendix

- A. Raw Turn Movement Counts
- B. LOS Calculation Sheets
- C. Other Information Provided

The above outline provides the minimum criteria for a detailed traffic study report. Where the size/scope of the project or work to be performed would not warrant inclusion of all of the topics above, a shorter report format may be used. In this case, the topics to be included in the report would be discussed during the scoping process.

### **Additional Information**

**Background Growth Rate (non-site specific)** - The annual percentage rate of traffic growth that cannot be assigned to a specific project. This rate is to be applied to the existing turn movement volumes prior to the addition of the background project traffic or site generated traffic volumes.

**Background Project Traffic** - The total site generated traffic volumes for approved background projects shall be used in the build-out analyses of the proposed project irrespective of each projects anticipated completion date. This is required to ensure that capacity that was available when the background project was approved is still available at the completion of the proposed project. Quicker developed projects will not be allowed to deplete the capacity needs of longer-term development.

**Level of Service (LOS)** - Levels of Service shall be determined in accordance with the methods reported in the latest edition/update of the *Highway Capacity Manual*, Special Report 209.

**Pass-by Trips** - Pass-by trip reductions, if used, shall be shown and calculated on separate figures. The pass-by rates must be established during the scoping process. Rates and procedures shown in the latest edition of the ITE *Trip Generation* manual may be used. For those land uses without pass-by trip rates, sufficient documentation supporting the proposed rates shall be provided to and accepted by Spokane County.

**Peak Hour Factors (PHF)** - Peak hour factors shall be determined from the recorded turn movement volumes and used throughout the study. For cases where a peak hour factor was not calculated or was unable to be calculated, the default values contained in the latest edition/update of the Highway Capacity Manual shall be used.

**Responsible Engineer** - The engineer that is responsible for the work of the study and report shall affix his/her seal on the cover page of the report. The responsible engineer shall be licensed in the State of Washington and have experience in traffic/transportation engineering.

**Right Turns on Red (RTOR)** - RTOR movements, if they are to be used as reductions in the study, shall be recorded in the field and submitted with the turn movement counts. The number of vehicles that can take advantage of this maneuver greatly varies by intersection and area.

As v/c ratios increase, fewer gaps will be available to allow RTOR movements and a methodology for use in future year scenarios shall be provided and accepted by Spokane County prior to submission of the traffic study report.

**Trip Generation** - Trip generation shall be based on local trip generation rates for similar facilities provided there has been sufficient study to provide good statistical significance.

## TECHNICAL REFERENCE A

### Traffic Studies and Review Procedures

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Where local rates are not available, the rates contained in the latest edition of the ITE *Trip Generation* manual shall be used.

Turn Movement Counts - As a general rule, traffic counts should be recorded less than one year prior to submitting a traffic study. Older counts may be used provided they are adequately factored to represent current volumes and the methods used in determining and applying the factors are discussed in the report. Counts older than two years shall not be used.

Mitigation – All proposed mitigation shall be described in detail and conceptual sketch included as part of the study. The description should be in enough detail to explain how the land use action transportation impacts will be mitigated by the proposed mitigation. The conceptual sketch shall be in enough detail to determine if the proposed mitigation can be reasonably implemented and acceptable to the County Engineer.

Internal site circulation – circulation plans and discussion may be required if concerns arise that site access and circulation may impact public road traffic.

Transit access – access to transit may need to be addressed in the traffic impact study.

Updated Studies - Occasionally traffic impact studies will need to be updated and/or revised. Should this be necessary, all information and procedures shall be brought into conformance with these standards. For example, new turn movement counts may need to be gathered depending on the age of counts or change in traffic patterns, phasing and/or build-out year may need adjusted, etc. Where the revisions to a study are minor and would not warrant the submission of a new report, errata sheets shall be provided along with a notice to affected parties to make the necessary additions, deletions and/or changes.

**References**– the following references may be cited during the review of the traffic study report. Editions of references are the latest at the date of the writing of this technical reference, current edition if available shall be used in developing the traffic study report.

*Guidelines for Traffic Impact Reports/Studies*, State Highway Administration, Maryland Department of Transportation.

*Highway Capacity Manual*, HCM2000. Washington D. C.: TRBoard, 2000.

*Site Impact Traffic Evaluation (SITE) Handbook*. Washington D. C.: FHWA, 1985.

*Transportation Impact Analysis for Site Development*. Washington D. C.: Institute of Transportation Engineers, 2005.

*Trip Generation*, Eighth Edition. Washington D. C.: Institute of Transportation Engineers, 2008.

**Traffic Study Scope Worksheet**

Transportation Engineering

Name of Project \_\_\_\_\_  
Planning File Number \_\_\_\_\_ S-T-R \_\_\_\_\_ Lead Planner \_\_\_\_\_  
Date of Scoping Meeting \_\_\_\_\_  
Attended By \_\_\_\_\_  
Description of Project \_\_\_\_\_  
Land Uses (if known) \_\_\_\_\_  
Project Phasing \_\_\_\_\_ Build Out Year \_\_\_\_\_  
Public Scoping Meeting: Date \_\_\_\_\_ Time \_\_\_\_\_ Place \_\_\_\_\_

**Scope of Study**

Threshold     Full Traffic Study     Other Study/Review  
For Threshold and Other Study/Review, describe below

Intersections to Study \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Background Development Projects \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Background Growth Rate \_\_\_\_\_ Pass-by Traffic Rate \_\_\_\_\_  
Site Distance Analysis \_\_\_\_\_  
\_\_\_\_\_

Area Transportation Improvement Projects (Planned/Scheduled) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Anticipated Directional Distribution of Project Traffic \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Other Comments \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\* Final scope will be established after the first public meeting and upon receipt of a distribution letter and map from the project's traffic engineer.  
\* This scoping document fulfills the requirements set forth by Spokane County Engineering. Additional analysis may be required by other reviewing agencies.

### Pavement Design Criteria

The pavement design criteria is summarized in Sec. 3.16 of the Spokane County Standards for Road & Sewer Construction, which references the AASHTO *Guide for Design of Pavement Structures*, 1993.

The structural pavement calculations, soil sample locations, lab results, design criteria and recommendations are to be included in a report prepared by the Sponsor's Engineer. All design factors used are to be listed in the report, including traffic loads projected to occur over the life of the pavement. The report is to be stamped by an engineer, licensed in the State of Washington. Spokane County shall review all pavement designs prior to approval.

The following parameters are to be used in the design of flexible pavements, unless technical justification can be provided which demonstrates that certain other parameters and constants are applicable.

1. The County standard pavement design life is 20 years for new construction, 15 years for pavement overlays.
2. Truck Factors will be determined for each vehicle type or the following factors may be used in the absence of other information available:

| Vehicle Type | Factor<br>(ESAL/Vehicle) |
|--------------|--------------------------|
| School Bus   | 2.87                     |
| STA Bus      | 2.57                     |
| Refuse Truck | 1.03                     |
| Urban        | 0.44                     |
| Rural        | 0.77                     |

3. The Level of Reliability, R is to be as follows:  
Local Access, R = 75%                      All other Public Road Classifications, R = 90%
4. The overall Standard of Deviation (S) is to be as follows:  
New Construction, S = 0.45                      Overlay, S = 0.49

TECHNICAL REFERENCE B  
Structural Pavement Design of Flexible Pavements

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5. The Initial and Terminal Serviceability Indexes (PSI) are to be as follows:

| Road Class.                  | PSI (initial) | PSI (terminal) |
|------------------------------|---------------|----------------|
| Local Access                 | 4.2           | 2.00           |
| Minor Arterials & Collectors | 4.2           | 2.25           |
| Principal Arterials          | 4.2           | 2.50           |

6. The Structural Layer Coefficients (aj) and Drainage Coefficients (mj) for new material is to be in accordance with Table 2.4 and Appendix DD of the AASHTO *Guide for Design of Pavement Structures*, 1993. In the absence of following the more rigorous design approach outlined in these two references, the following factors can be used:

| Material                             | Structural Coeff. | Drainage Coeff. |
|--------------------------------------|-------------------|-----------------|
| <b>ACP Class A</b>                   | 0.42              | 1.00            |
| <b>ACP Class E</b>                   | 0.42              | 1.00            |
| <b>Bituminous Surface Treatment</b>  | 0.20              | 0.95            |
| <b>Crushed Surfacing Top Course</b>  | 0.14              | 0.95            |
| <b>Crushed Surfacing Base Course</b> | 0.14              | 0.95            |
| <b>Cement Modified Soil</b>          | 0.25              | 0.95            |

### **Soil Sampling Procedure**

The Engineer shall obtain soil samples which sufficiently represents the subgrade, and identifies where significant changes in subgrade strength occurs. Normally, the following procedure needs to be followed:

1. Obtain a minimum of 3 samples per job per SCS soil type. Larger projects will require more frequent sampling;
2. Conduct soil borings/test pits to a minimum of 5 ft. depth below proposed subgrade, classify the soil per the USC method;
3. Provide written soil logs; and
4. Record the station, offset and elevation of the samples, stationing is to correspond with the road plans.

### **Subgrade Modulus**

For structural pavement design of roadways that are not within residential neighborhoods, or not subject to residential type traffic loading, an analysis of the resilient modulus and traffic loading is necessary. Selecting the appropriate subgrade modulus requires experience and judgement. A licensed engineer with experience in pavement design should be consulted to help evaluate the subgrade modulus in addition to the prescribed tests. The resilient modulus can be acquired using the following methods:

1. Contract with a private firm/laboratory to perform the  $M_R$  testing. Soil samples need to be obtained, and sent to the private lab for testing.
2. Obtain soil samples and have a WSDOT lab perform the test work. WSDOT will not perform the work directly for private developers or consulting engineers; however, they will perform the work for Spokane County. This work can be requested through Spokane County if the work will be for public road construction. Once Spokane County receives the soil samples, the County will deliver them to a WSDOT lab.
3. Conduct in-situ testing of the subgrade using a non-destructive deflection test method. The results are to be reported by road stationing. The Sponsor shall acquire concurrence with the County Engineer on the type of non-destructive deflection test method proposed, prior to conducting the tests.
4. Index testing of soils. For certain USC soil classifications, Indexed values can be used to estimate the resilient modulus ( $M_R$ ), in lieu of conducting resilient modulus testing. The Index values are listed in the table below. Soil sampling to classify the soil and record it's location, shall be done in accordance with the Soil Sampling Procedure listed in this Technical Reference.

| <b>Soil Type<br/>per Unified Soil<br/>Classification System (USC)</b> | <b>Resilient Modulus<br/>Values (<math>M_R</math>) psi<br/>low-high range<sup>(1)</sup></b> |
|---|---|
| GW  | 15,000<br>18,000  |
| GP or GM  | 10,000<br>12,000  |
| SW  | 8,000<br>10,000   |
| SP  | 5,000<br>10,000   |

Note (1) The gradation and fines content needs to be considered when selecting an appropriate  $M_R$  value. An  $M_R$  value near the low end of the specified range for SP or SM is appropriate for predominately fine sands or silty sand with a fines content exceeding approximately 25%. An  $M_R$  value near the high end of the specified range for SP or SM soils is appropriate for predominately medium to course sands or silty sands with less than 25% fines. Fines content is the soil which passes a #200 sieve.

## TECHNICAL REFERENCE B

### Structural Pavement Design of Flexible Pavements

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For the non-destructive deflection test method a statistical analysis is needed, and is to include a graph of the tested resilient modulus values -vs- road stationing (i.e. location). The graph shall be included in the design report prepared and submitted by the Sponsor's Engineer.

In certain limited cases, the of non-destructive deflection test equipment which is owned and operated by Spokane County is available for privately sponsored road construction projects. The equipment needs a driveable surface over the proposed subgrade. County road projects always take priority. But, if there is an interest in paying for the use of the equipment, please call the Spokane County Engineer's Office to check on availability and make the necessary arrangements.



**PROJECT CONSTRUCTION CERTIFICATION PROCEDURES**

**for**

**SPOKANE COUNTY  
ROAD, DRAINAGE, AND SEWER PROJECTS**

**APRIL, 2002**


PREPARED BY

SPOKANE COUNTY  
DEPARTMENT OF PUBLIC WORKS

in association with

AMERICAN COUNCIL OF ENGINEERING COMPANIES OF WASHINGTON  
SPOKANE COUNTY CONSTRUCTION CERTIFICATION COMMITTEE

**County Engineer**

  
\_\_\_\_\_  
Ross Kelley, P.E.

4/11/02  
\_\_\_\_\_  
Date

**Utilities Director**

  
\_\_\_\_\_  
N. Bruce Rawls, P.E.

4/18/2002  
\_\_\_\_\_  
Date

## **INTRODUCTION**

The Construction Certification Committee is comprised of representatives of the Spokane County Public Works Department and the local chapter of the American Council of Engineering Companies of Washington (ACEC). The Committee has been working over the past three years to address issues of concern regarding the construction certification procedures for projects within Spokane County. There has been a major focus by this Committee on the development of guidelines to insure a consistent approach to the technical and administrative procedures during the construction phases of projects.

The initial meeting of the Committee was held on February 12, 1999. Meetings were initially held twice a month and then changed to once monthly. Meeting minutes were kept and distributed to Committee members and to the ACEC membership as a whole as the work progressed.

The committee's first interim report was completed and made available to interested parties (local developers, contractors, and engineers) in June of 2000. Workshops were scheduled and held with the development/contracting community on June 15, 2000, and subsequently on March 21, 2001 to present the interim work products of the Committee and to receive comments on the committee's findings and recommendations.

The procedures developed by the Committee and presented herein are intended to foster consistent high quality products for the developer, and to facilitate the subsequent transfer of ownership of the finished products to Spokane County. The procedures have been derived from the committee's interim report documents, with consideration of comments received and concerns expressed by the development/contracting community, and have been adopted by the Division of Engineering and Roads, and by the Division of Utilities.

These procedures provide the needed framework for effective interaction between the sponsor, the Sponsor's Engineer, and the Department of Public Works. Additionally, the procedures promote adherence to the County's adopted Standards for Road and Sewer Construction. Note that these procedures apply to public and private road and sewer projects. It is anticipated that specific separate procedures will be developed for and adopted by the County for commercial and industrial development projects.

## **GUIDELINES and PROCEDURES**

|                            |  |
|----------------------------|--|
| <b>Authority of County</b> | Prior to the start of construction, the County will determine the specific reporting needs for a project, and the sponsor will identify the Sponsor's Engineer and the Project Coordinator. The County will identify areas of particular technical concern and historical problem areas to the Sponsor's Engineer. The County has defined the general structure for objective measurements and/or determination methods for construction acceptability (See Attachment 3). The Sponsor's Engineer is responsible for the reasonable application of those methods to the specific project. County inspectors will make site visits intermittently during the construction of the project to verify progress and will periodically discuss inspection activities with the Project Coordinator. |
| <b>Sponsor's Engineer</b>  | The Sponsor's Engineer shall be a licensed Professional Engineer in the State of Washington. Inspections are to be performed by that engineer, or by his/her representative. An outline of Construction Phase Services is presented in Attachment 1 to this document.  |
| <b>Project Coordinator</b> | The project sponsor shall designate a Project Coordinator for each project. The Project Coordinator shall be responsible for managing the day-to-day operations of the project including traffic control, citizen concerns, and overall coordination. The Project Coordinator shall be the contact for the County personnel. The Project Coordinator's responsibilities are separate from construction inspection and certification duties of the Sponsor's Engineer. The Sponsor's Engineer need not be the Project Coordinator, although he/she can be if the developer so designates.   |
| <b>Inspection Bonding</b>  | The inspection and construction bonds/securities will not be released until the project is certified and the project is accepted by the County and written authorization for release is received from the Sponsor's Engineer. In some cases, partial releases of certain types of construction securities may be allowed by the County Engineer or the Utilities Director.   |
| <b>Pay Requests</b>        | The sponsor should include review of the construction pay requests for percent complete and/or items complete as a part of the engineering services contract. This is related to the County's requirements for security reductions. The percent complete or items completed will need to be signed off by the Sponsor's Engineer and certified before a financial security reduction is allowed.   |
| <b>Record Keeping</b>      | At a minimum, there will be weekly project summary reports submitted to the County by the Sponsor's Engineer, even if no work was performed. Specific reporting requirements will be discussed at the  |

pre-design meeting and established prior to construction. For some projects, the County will require daily reports to be submitted.

**Reporting  
Forms**

All lab and field-testing reports need to be included in the final certification package. Test reports that show failing tests need to have follow-up test reports that show passing tests for the area of failure. On-site samples need to be used for testing. The use of test reports from other projects to certify work on the project being certified is not allowed. Any nonconforming issues shall be fully documented with subsequent documents on how the issue was corrected.

**Traffic  
Control**

The Project Coordinator for the project needs to make sure that the requirements for traffic control on a project are being properly handled.

**Construction  
Complaints**

Complaints from citizens regarding the project need to be documented by the Project Coordinator and resolved. Spokane County personnel need to be involved in the process when the County's authority needs to be used to resolve an issue.

**Drainage  
Swale  
Inspections**

The Sponsor's Engineer will verify that the volume of each finished drainage swale equals or exceeds the design volume of the swale at a six-inch depth. Additionally, the Sponsor's Engineer will verify that there is adequate and continuous grade from the road to the swale for the effective conveyance of runoff. The Sponsor's Engineer and the County will monitor the performance of swales during the construction and warranty period for proper percolation. Swales that do not percolate properly will require corrective work or measures.

**Utility  
Inspections**

A sewer inspection policy has been developed by the Division of Utilities and adopted by the Board of County Commissioners (See Attachment 4, Resolution No. 98-0771).

In addition, the Division of Utilities has developed a protocol for the scheduling and review of television inspections, which is Attachment 5 to this document.

Whenever pipe installation or pipe zone material placement and compaction is underway, the Sponsor's construction engineer, or his/her representative, shall observe the work on a continual basis.

**Changes  
During  
Construction**

Changes during construction that affect the scope of the project and/or the accepted individual lot plans must be submitted for review by the County. Minor changes do not need to be reviewed by the County, but must be documented in the daily and weekly inspection reports.

**Acceptance vs. Approval**

The County uses these terms in the following ways:

Acceptance: Pertains to construction plans, calculations, and details. Spokane County has not prepared them, and relies upon the responsible engineer's stamp.

Approval: Related to design and/or construction deviation from the County Standard. County approval is required for all deviations from Standards.

**Project Acceptance After Construction Completion**

1) The Sponsor's Engineer performs an inspection with the contractor and as necessary issues a punch list to be completed.

2) The "walk through" with the County is scheduled as soon as possible after the Sponsor's Engineer is satisfied that all punch list items are completed.

3) The "walk through" with Spokane County is performed and any remaining deficiency items are noted to a punch list. If no deficiency items are noted, this is considered the "final walk through". The Sponsor's Engineer may then submit certified Record Drawings and Project Certification documents to the County requesting acceptance of the project.

4) The sponsor should consider taking verification photographs immediately following the "final walk through". The sponsor continues to be responsible for correction of all deficiencies until the Board of County Commissioners (the Board) accepts of the project. Verification photographs can be helpful in resolving cases of damage by third parties (e.g. utility companies, builders, landscapers, etc.)

5) The Sponsor's Engineer shall compile and submit a certification package to the County. The package shall include all related construction documents, one set of mylar record drawings, and a stamped and signed certification statement from the Sponsor's Engineer. See Attachment 3 for an example checklist presenting the minimum certification requirements.

6) If the engineer's submittal is not received within two weeks of the walk through, or if deficiencies are noted during the walk through, another walk through inspection with the County inspector may be required. NO NEW ITEMS WILL BE ADDED TO THE LIST AT THIS TIME, UNLESS NEW DAMAGE HAS OCCURRED SINCE THE PREVIOUS "WALK THROUGH".

7) If the certification package is incomplete, or otherwise

unacceptable, the Sponsor's Engineer shall be required to provide the missing documents before the County will issue the Notice of Substantial Completion.

8) The County will review the certification documents within a two-week period and issue a Notice of Substantial Completion if appropriate. This Notice of Substantial Completion is conditioned upon no further deficiencies becoming evident before the Board has accepted the project.

9) If no acceptance by the Board is required (i.e. sewers, private roads etc,) the Notice of Substantial Completion shall be considered the point of acceptance by Spokane County for the project, and the start of the warranty period.

10) For projects requiring the Board's acceptance, the County staff will make reasonable efforts to bring the project before the Board for acceptance within a six-week period following the Notice of Substantial Completion. The sponsor will remain responsible for the condition of the project as documented during the final walk through until formal acceptance by the Board.

11) A flow chart of this procedure is included as Attachment 2.

**Conflict  
Resolution**

During the construction process, occasional differences may arise between the Sponsor's Engineer and County staff regarding the interpretation of policies, standards or guidance documents. When the Sponsor's Engineer does not agree with an interpretation made by County staff, the Sponsor's Engineer may appeal to the County Engineer or Utilities Director, as appropriate. The County Engineer or Utilities Director will review the circumstances and make a determination in support of the position of the Sponsor's Engineer or County staff. If the Sponsor's Engineer disputes the outcome of this review process, he/she may request that the issue be referred to an Engineering Review Panel with a structure similar to that of the panel identified in the County's Standards for Road and Sewer Construction for the resolution of design deviation issues.

**Record  
Drawings**

Changes from the originally accepted documents shall be clearly noted with "clouds." Revised notes, elevations, grades or other text should be lined through. "Clean new sheets" are not desired. Any changes to easements need to be clearly shown on the Record Drawings. The Record Drawings should be marked "Record Drawings."

General Guidance: If a change represents a change from the design intent or system performance in the judgment of the engineer, then it

should be clearly shown. Record Drawings are to reflect the correct location of that which is in the field. Spot elevations (on swales, curb, gutter, etc.) to depict the final grades should be taken and compared with the final design, and differences noted on the Record Drawings. Elements of the plans that were not built need to have a design change acceptance from Spokane County prior to final inspection and submittal of Record Drawings.

The County will provide examples of acceptable Record Drawings at the request of the Sponsor's Engineer.

**Warranty  
Period and  
Damage by  
Third Parties**

The start date and the extent of the warranty period shall be as stipulated in the County Standards for Road and Sewer Construction. The County will hold the sponsor responsible for any damage until final acceptance by the Board has occurred. Once the project has been accepted by the Board, the County will hold the property owner, utility company, builder, etc., responsible for damages that may occur that are not warranty items.

**ATTACHMENTS**

- Attachment 1 – Construction Phase Services Outline
- Attachment 2 – Flow Chart – Project Acceptance
- Attachment 3 – Final Certification Checklist - Sample
- Attachment 4 – Interim Policy Regarding Sewer Construction Inspections
- Attachment 5 – Spokane County TV Inspection Protocol
- Attachment 6 – Minimum Testing Frequencies

**ATTACHMENT 1 – CONSTRUCTION PHASE SERVICES**

**AMERICAN COUNCIL OF ENGINEERING COMPANIES OF WASHINGTON  
SPOKANE COUNTY PUBLIC WORKS  
CONSTRUCTION CERTIFICATION SUBCOMMITTEE**

Required Items to be completed by the Sponsor's Engineer:

- I. Specific Certification Inspections
  - A. Roads
    - Erosion Control.
    - Drainage Improvements/Testing.
    - Embankment Placement/Density Control.
    - Trenching Backfill/Density Control.
    - Subgrade Line and Grade/Density Control.
    - Surfacing Line and Grade/Density Control.
    - Curbs and Sidewalks/Material Quality.
  - B. Sewer
    - Full time inspection and testing during pipe installation and pipe zone material placement.
- II. Review and approval of changes to approved plans including approval through the County if necessary.
- III. Record keeping and weekly reporting to the County.
- IV. Contractor pay requests/bond reduction assistance.
- V. Project acceptance of construction (See interim report flow chart).
- VI. As built survey/record drawings and side sewer (stub) reports.
- VII. Certification report.

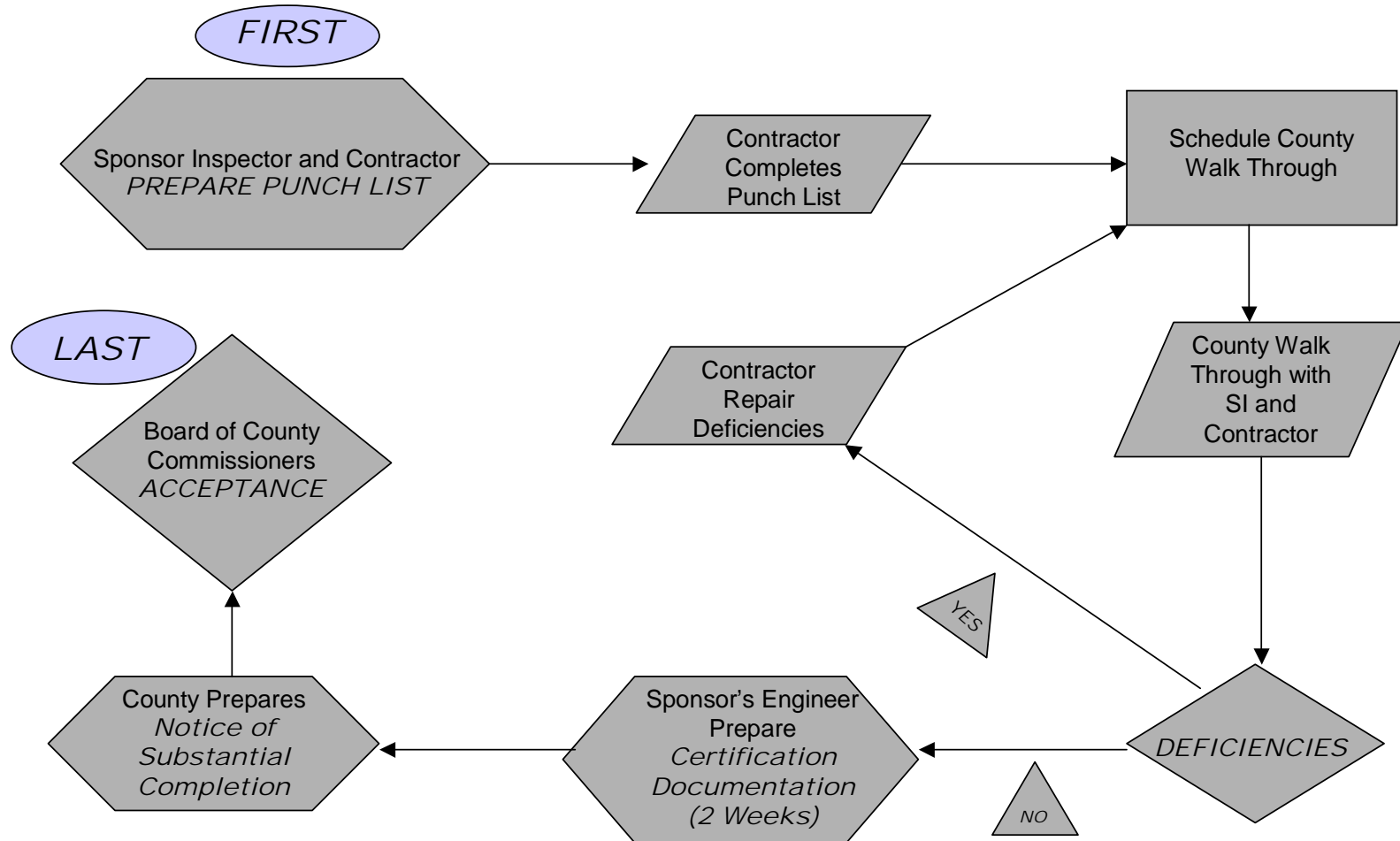
Required Items that may be completed by designated Project Coordinator or Sponsor's Engineer:

- I. Pre-Construction meeting.
- II. Construction staking.
- III. General project administration, coordination, and schedule monitoring.
- IV. Traffic and dust control.
- V. Response to construction complaints and resolution of complaints.
- VI. Monumentation



ATTACHMENT 2 FLOW CHART

PROJECT ACCEPTANCE AFTER CONSTRUCTION COMPLETION



**ATTACHMENT 3 – FINAL CERTIFICATION CHECKLIST (SAMPLE)**

**Project:** \_\_\_\_\_

**Certificate Head Letter:** \_\_\_\_\_

Statement of intent to certify the project.  
PE Stamp and Signature.

**Record Drawings Mylar Drawings:** \_\_\_\_\_

PE Stamp and Signature  
Lettered certification statement (9.10 Spokane County Standards)

**Project Documents:** \_\_\_\_\_

**Daily Inspection Reports:** \_\_\_\_\_

**Field Reports:** \_\_\_\_\_

Inspection of Asphalt Paving:  
100% On site inspection during paving. \_\_\_\_\_

Compaction Reports:  
Sewer trench lifts. \_\_\_\_\_  
Water trench lifts. \_\_\_\_\_  
Utility trench lifts. \_\_\_\_\_  
Crushed Rock Lifts. \_\_\_\_\_

**Material Documents: Field and Laboratory Tests:** \_\_\_\_\_

|               | <b>Field Test</b> |                             | <b>Lab Test</b>                      |
|---------------|-------------------|-----------------------------|--------------------------------------|
| Concrete:     | _____             | (Slump, Air Content, Temp.) | _____ (Break Test)                   |
| Sub-Grade:    | _____             | (Compaction)                | _____ (Gradation, Proctor)           |
| Crushed Rock: | _____             | (Compaction, Depth)         | _____ (Gradation, Proctor)           |
| Asphalt:      | _____             | (Compaction, Thickness)     | _____ (Rice, Gradation, Oil Content) |

**On Site Inspections Of Drainage Items:** \_\_\_\_\_

Drywells: \_\_\_\_\_  
Gutter Inlets: \_\_\_\_\_  
Culverts: \_\_\_\_\_  
Sidewalk Vaults: \_\_\_\_\_  
Drainage Ditches: \_\_\_\_\_  
Other: \_\_\_\_\_

**Incoming / Outgoing Correspondence:** \_\_\_\_\_

(This is a guide line of required documents, but not limited to, for final certification.)

**ATTACHMENT 4**

**INTERIM POLICY REGARDING SEWER CONSTRUCTION INSPECTIONS,  
RECORD DRAWINGS & ENGINEER'S STATEMENT**

**Inspection Requirements**

These requirements apply to all public and private sewer lines eight inches and larger in diameter, and to sewer service stubs extended from those lines to the property lines of individual parcels. Note that all sewer service lines six inches and smaller in diameter, other than those service stubs noted above, will be inspected by Spokane County Division of Utilities.

On all sewer construction for development, inspections will be performed by the Sponsor's Engineer or his/her designated representative. At the request of the sponsor, the County may provide the sewer inspection services, provided that the sponsor agrees to pay all costs associated with the County inspections and provided that the County determines that staff is available to perform the inspections.

The inspection of sewers shall include the items listed below. However, the listing provided below is not intended to be all inclusive. It will be the responsibility of the Sponsor's Engineer to determine additional inspection activities that may be needed for a specific project in order to report substantial conformance of the project with the County's standards.

1. Conformance of all construction materials with County standards shall be verified prior to installation.
2. The sewer trench shall be inspected for proper dimensions and pipe zone clearances prior to placement of pipe.
3. The placement and compaction of the pipe zone material and bedding shall be inspected.
4. The pipe joints shall be inspected visually for proper insertion.
5. Horizontal alignment and grade of the pipe shall be checked for conformance to the standards prior to backfilling of the trench.
6. Sewer service tees and stubs shall be inspected for correct installation prior to backfilling of the trench.
7. Accurate measurements shall be made and recorded to facilitate the reestablishment of sewer service tee locations and stub end locations. The placement of the required stub markers shall be verified.
8. Manholes shall be inspected for proper materials, location, assembly, and installation.
9. Trench backfilling operations shall be observed and compaction tests shall be performed. Minimum requirements for backfilling shall be as set forth in the accepted plans and/or specifications for the project.
10. Mandrel testing, hydrostatic and/or air pressure testing, and manhole testing shall be performed following completion of trench backfilling operations. The testing shall be observed until passing results are obtained. Manhole testing shall be performed on ten percent of the manholes in the project, in accordance with Department of Ecology's "Criteria for Sewage Works Design".

## TECHNICAL REFERENCE C

### Construction Certification

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11. The Sponsor's Engineer shall schedule television inspection of the sewer lines through the Division of Utilities once the other testing has been satisfactorily completed. The Division of Utilities will then perform the television inspection and review the tapes for deficiencies requiring correction or repair.

Adopted Via Resolution 98-0771

9/22/98

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12. Daily inspection reports shall be prepared, summarizing construction activities, contractor work force and work period, testing results, problems encountered, and other pertinent information.

The project sponsor or the sponsor's Construction Engineer shall notify the Division of Utilities 48 hours in advance of the start of construction of the sewer system, and shall provide a generalized schedule for the progress of the work. County inspection personnel will make occasional site visits to inspect the work and do materials testing as deemed necessary. County inspection personnel will address concerns and questions to the Engineer of Record. The cost of these occasional site visits will be charged to the Construction Permit for the work.

The sponsor will bear the cost of all inspections and materials testing. The Division of Utilities shall have access to all construction inspection records and reports. Before the County accepts the sewer system, the Sponsor's Engineer shall submit all construction records to the Division of Utilities. This shall include but not be limited to Daily Inspection Reports, correspondence, manufacturers' certifications, and material test reports.

When changes to the design are necessary, the sponsor shall be responsible for coordinating the proposed design changes with the sponsor's Design Engineer. The sponsor's Design Engineer shall forward two copies of the proposed plan changes, together with related calculations, to the Division of Utilities for review and acceptance prior to construction.

The Sponsor's Engineer shall schedule a final inspection meeting between the Sponsor's Engineer, the sponsor, and the Division of Utilities at the completion of construction and testing of the sewer system. Deficiencies found shall be corrected by the sponsor prior to the County's acceptance of the sewer.

#### **Record Drawings & Engineer's Statement**

During construction the sponsor's Surveyor and/or Construction Engineer shall record any changes to the accepted plans. All substantive changes shall be indicated and noted on the accepted final sewer plans and the plans shall be annotated as "Record Drawings". In those cases where the County provides the inspection services, the County will produce the Record Drawings.

Side sewer stub sketches shall also be prepared on the County's standard form. As-built elevations, locations, pipe lengths, and pipe slopes must be verified on the Record Drawings. The following statement shall be lettered on the Record Drawings and stamped and signed by the sponsor's Construction Engineer on the Record Drawings: "I have reviewed the construction of this sewer system and to my knowledge find it to be in substantial conformance with the accepted plans and Spokane County Standards except as noted."

**ATTACHMENT 5**

**SPOKANE COUNTY DIVISION OF UTILITIES  
PROTOCOL FOR TELEVISION INSPECTION OF SEWERS**

In the interest of developing a consistent methodology for the coordination and review of television inspections, the following steps have been established:

**1. PRE-PAVING TELEVISION INSPECTION**

- a) At least two weeks prior to the desired pre-paving television inspection, the Contractor requests the television inspection through the Sponsor's Engineer. The Engineer submits the request (on standard form) to the Division of Utilities Sewer Design Section. (Utility contacts are B. Urhausen and G. Repp).
- b) Sewer Design Section schedules television inspection with the Wastewater Operations Section.
- c) In order for the inspection to take place, sewer mains will need to be high-pressure cleaned, mandrel tested, and pressure tested. In addition, manholes will need to be accessible by the TV van. Backfill must be in place around the cone sections of the manholes. If the contractor has placed temporary steel plates on top of the manholes, then the contractor will need to provide manpower and equipment to remove and replace the plates to facilitate the television inspection.
- d) Detailed television inspection is undertaken, noting tee locations/stations, irregularities, defects, etc.
- e) The Contractor shall pay the cost of the pre-paving television inspection.

**2. REVIEW OF PRE-PAVING TELEVISION INSPECTION**

- a) When the Sewer Design Section receives the VHS tapes and fault log from the Operations Section, the fault log will be reviewed for noted defects. The tapes and log will then be forwarded to Engineer for review.
- b) Engineer reviews tapes and log, and makes determination of any repairs that need to be undertaken.
- c) Engineer coordinates with Sewer Design Section Manager for concurrence on repairs that are needed. In some cases, this may necessitate joint review of the tapes.
- d) After concurrence between the Engineer and the Sewer Design Section Manager, the Engineer will stipulate the required repairs to the Contractor.

**3. ACCEPTANCE STANDARDS FOR GRADE DEVIATIONS**

- a) The Standard Specifications stipulate that reverse grades are not acceptable. In the review of television inspection tapes, the Engineer and the Sewer Design Section Manager will consider the combined effects of pipe joints, allowed variations in pipe diameter, and grade on any entrapped water appearing on the inspection tapes.

**4. POST-PAVING TELEVISION INSPECTION**

- a) After the roadway is substantially complete above the sewer, a post-paving television inspection will be scheduled, in the same manner as the pre-paving television inspection.
- b) This television inspection will be less detailed than the first, and will be undertaken to check for pipe cleanliness, and to identify any structural defects that may have occurred/presented since the initial television inspection.
- c) The review of the tapes and concurrence on needed repairs will proceed in the same fashion as identified for the pre-paving television inspection.

## TECHNICAL REFERENCE C

### Construction Certification

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- d) The cost of the first post-paving television inspection shall not be charged to the Contractor. The cost of any subsequent television inspections performed to confirm the adequacy of repairs will be charged to the Contractor.

#### **5. REMEDY PROVISIONS**

- a) In the case of a pipeline swale, or other defect, that is identified during the post-paving television inspection, the Engineer and the Sewer Design Section Manager shall determine the need for repair work to correct the defect.
- b) In certain cases, in lieu of undertaking the repair, the Contractor may be required to pay the estimated cost of making the repair to the County. Such payment will then be deposited in the County's sewer repair and replacement fund.

#### **6. MANHOLE INSPECTIONS**

- a) The Engineer shall inspect the sewer manholes for conformance with Spokane County Standards. Observations regarding the condition of manholes made by the television inspection crew are to be considered as supplementary information, and are not intended to replace the Engineer's inspection.

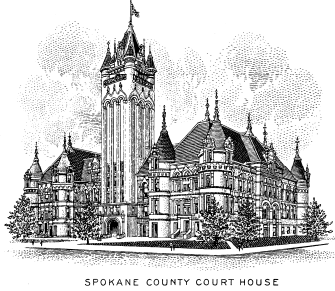
#### **7. MAKING CONNECTIONS TO NEW SEWER LINES**

No connections to the new sewer lines will be allowed until the County has accepted the sewer lines for operation and maintenance. Before acceptance can occur, the Engineer must provide acceptable record drawings for the project to the Division of Utilities, together with the required Engineer's Statement. Additionally, the warranty period security must be provided by the developer as stipulated in the development agreement.

**ATTACHMENT 6 – MINIMUM TESTING FREQUENCIES**

|                         |   |
|-------------------------|---|
| <b>Earth Embankment</b> | - 1 test / 500 CY placed  |
| <b>Road Subgrade</b>    | - 1 test per 100 l.f. of lane or equivalent   |
| <b>Base Course</b>      | - 1 test per 100 l.f. of lane or equivalent   |
| <b>Trenches</b>         | - 1 test per 150 CY with varying test depths  |
| <b>Curb Grade</b>       | - 1 test per 100 l.f.   |
| <b>Concrete</b>         | - 1 set (4 cylinders) / day or / 100 CY<br>- 1 set of air, slump, temperature, etc. / day or /100 CY  |
| <b>Aggregate</b>        | - 1 test to verify that gradation meets specifications  |
| <b>Asphalt Pavement</b> | Lot = 400 tons<br>5 Compaction tests per lot, Minimum 5 Compaction tests per day<br>- 1 test to verify gradation / 1,000 tons<br>- 1 test to verify maximum density / 1,000 tons<br>- 1 test to verify asphalt content / 1,000 tons |

TECHNICAL REFERENCE D  
Regional Pavement Cut Policy



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## REGIONAL PAVEMENT CUT POLICY

---

October 7, 2008

### PURPOSE:

The purpose of this policy is to establish a uniform approach to pavement cuts and repair applicable to utilities and other contractors working in the public rights-of-way.

### POLICIES:

The local agency shall establish a tiered system based on the date of construction or reconstruction of pavement and may apply also criteria for roadway condition. The policies applicable are as follows:

1. A pavement cut moratorium will be in effect for a period of three years for all new and reconstructed Tier 1 roadways.
2. The policies for Tiers 2-4 roadways is as follows:
  - a. Full Policy: Patches/paving shall extend the full width of an established travel lane. Pavement cuts shall be full depth and extend 2 feet (2'-0") beyond the nominal trench edge longitudinally and transversely. There shall be no gaps  $\leq$  four feet (4'-0") from curb or gutter.
  - b. Modified Policy: Patches paving shall extend beyond the wheel path to the middle of the travel lane. Pavement cuts shall be full depth and extend one foot (1'-0") beyond the nominal trench edge longitudinally and transversely.. There shall be no gaps  $\leq$  four feet (4'-0") from curb or gutter.
  - c. Trench Only: Pavement cuts shall be full depth and extend one foot (1'-0") beyond the nominal trench edge longitudinally and transversely at all locations within the roadway. No longitudinal joints shall be located in the wheel path.
3. Tiers Based on Age of Pavement



TECHNICAL REFERENCE D  
Regional Pavement Cut Policy

|                              | <b>Tier 1</b>     | <b>Tier 2</b>   | <b>Tier 3</b>   | <b>Tier 4</b>      |
|------------------------------|-------------------|-----------------|-----------------|--------------------|
| <b>Arterial Streets:</b>     | ≤ 3 years         | Years 4-5       | Years 6-12      | > 12 years         |
| Principal                    | Moratorium Policy | Full Policy     | Full Policy     | Modified Policy    |
| Minor                        | Moratorium Policy | Full Policy     | Modified Policy | Modified Policy    |
| Neighborhood Collector       | Moratorium Policy | Full Policy     | Modified Policy | <i>Trench Only</i> |
| <b>Local Access Streets:</b> |                   |                 |                 |                    |
| Industrial/Commercial        | Moratorium Policy | Modified Policy | Modified Policy | <i>Trench Only</i> |
| Residential                  | Moratorium Policy | Modified policy | Modified Policy | <i>Trench Only</i> |

**Note:** It is the discretion of each jurisdiction to review the individual road segment ages to determine patch requirements on longitudinal installation over multiple roadway segments with variable ratings. In principle, each road section will be patched according to the tier in which it is ranked.

**Note:** Any deviation from the Tier Policy will require approval in advance by the local agency.

**Note:** Each agency will provide date of last major reconstruct either electronically or on each permit. Maintenance does not constitute a reconstruct for age determination.

**Note:** Moratorium policy will be reviewed as seam-sealing technology improves.

**DEFINITIONS**

**Permittees:** The utility company or contractor who submits an application for a permit to obstruct and/or conduct construction operations in the public right-of-way. Local agencies and their contractors shall be considered permittees for application of this policy even though the respective agencies and/or their contractors may not take out permits.

**Local Agency:** The governing entity having jurisdiction of the area that the permittee has submitted an application to obstruct or conduct construction operations.

**Agency Engineer:** City or County Engineer, his/her designee (Engineers, Inspectors, Project Managers, Field Personnel) representing a Local Agency.

**Standard Specifications:** Current version of the WSDOT Standard Specifications for Road, Bridge, and Municipal Construction, Supplemental Specifications and/or Drawings as attached by local agencies.

**Project Completion:** Date when the following has occurred: final permanent restoration of roadway is complete and approved by the inspector, and all as-built documentation has been submitted to the local agency. A fax transmittal confirmation ticket of ‘as built’ shall be considered confirmation.

## TECHNICAL REFERENCE D

### Regional Pavement Cut Policy

**New Roadway:** Any roadway that has had a designed rehabilitation in the permitted excavation location that is less than or equal to three years.

**Travel Lane:** travel lanes shall be established based on striping, or where there is no striping, shall be twelve feet (12'-0") in width.

**Length of Patch:** For this document the length of all patches is the patch dimension parallel to the roadway.

**Width of Patch:** For this document the width of all patches is the patch dimension perpendicular to the roadway.

**Assignee:** The contractor who is taking out the permit.

**Patch:** Cut in the pavement as part of the current permitted job.

**Potholing:** Potholing is the practice of digging a test hole to expose underground utilities to ascertain the horizontal and vertical location of the facility. The horizontal and vertical position of the exposed facility must be tied to a survey benchmark or permanent above grade feature. The position may be identified by GPS or traditional survey coordinates or by measuring the distance, with a tape measure, to permanent features in three horizontal directions. In addition, the vertical distance below grade should be obtained.

**Bell Hole:** A hole dug to allow room for workmen to make a repair or connection in buried pipe, such as caulking bell-and-spigot pipe or welding steel pipe. A bell hole can also be used for the starting location of an underground bore, when using the directional boring equipment. In the broad sense, any hole other than a continuous trench opened for working on a buried facility

**Compaction:** Restoration and backfill of the Trench, Pothole, and Bell hole. Each shall be compacted in lifts using the industry standard equipment to tamp the backfill material to 95% density.

**Tier:** Age of asphalt

**Full depth:** Asphalt depth top to base of asphalt or thickness of asphalt

**Gap:** Distance between two asphalt patches

**Keyhole:** New technology for core drilling; used to drill a plug in the asphalt when checking the depth of existing utilities.

**MUTCD: Manual on Uniform Traffic Control Devices:** Traffic Control should be set up to warn and protect the workers and general public by avoiding the working area during construction. Traffic Control must meet or exceed the Washington State modifications to the

TECHNICAL REFERENCE D

Regional Pavement Cut Policy

MUTCD code for all work done with the City Right of Way (see <http://mutcd.fhwa.dot.gov> section, Chapter 6G and 6H).

TECHNICAL REFERENCE D  
Regional Pavement Cut Policy

**GENERAL REQUIREMENTS**

1. Patching:
  - a. No patching material will be allowed within an existing patch if the new patch exceeds seventy percent or more (70%+) of the existing patch. The entire existing patch shall be replaced.
  - b. The minimum length of the patch parallel to the road shall be six feet (6'-0"). If any part of the excavation, patch or damaged area intrudes into an adjacent lane, that lane shall also be replaced in accordance with the tiered chart.
  - c. New patches adjacent to any existing patch shall be installed at the existing patch line. When this is not feasible, no gap of 4 feet or less shall exist.
  - d. When 2 or more patches are created within a given job that measure 15 feet or less longitudinally or transversely they will be incorporated into a single patch. Anytime five or more patches are required within a 350-foot longitudinal area, the utility will notify the agency to determine if cost sharing is an option to expand the pavement repair/replacement area.
  - e. Only saw cutting or approved grinding device will be allowed. Only parallel and perpendicular pavement cuts will be allowed. No jagged, broken or undermined edges.
    - i. Per agency approval, grind and overlay outside of the full depth asphalt removal limits may be allowed to achieve full patch limits.
  - f. All pavement overcuts shall be sealed using a product approved by the agency.
  - g. The completed surface of all courses shall be of uniform texture; smooth, uniform as to crown and grade and free from defects. The completed surface of the wearing course shall not vary more than 1/4 inch from the lower edge of a ten foot straightedge placed parallel to the centerline. Recognition and consideration will be made for existing roadway conditions. The Agency Engineer must approve corrective measures.
2. Materials. All patching materials and construction requirements not addressed in this document shall conform to each Local Agency's Standards. Longitudinal cuts that extend through multiple tier classifications will require discussion with the local agency to determine appropriate patching approach. In principle, each road section will be patched according to the tier in which it is ranked.
3. Traffic Control:
  - a. All existing traffic control markings will be replaced as soon as possible after permanent paving is completed.
  - b. Temporary markings for lane lines and stop lines shall be in place prior to the roadway opening for traffic.

## TECHNICAL REFERENCE D

### Regional Pavement Cut Policy

- c. All remaining temporary striping will be completed within seven days of new pavement completion and shall be maintained by permittee until permanently restored.
  - d. All traffic markings will be replaced per normal work practices. All temporary traffic control for the work zone shall conform to the MUTCD and Washington State modifications to the MUTCD. All traffic control is subject to the approval of the Agency Engineer or his/her designee
4. Emergency Repairs. The permittee shall be allowed to make emergency repairs provided a more reasonable alternative does not exist. Every reasonable effort will be made to restore the roadway quickly. Local agency will be notified of emergency repairs not later than the next business day.

### **SPECIFIC REQUIREMENTS**

1. Chip sealed roads shall be rehabilitated according to construction requirements for asphalt roads as outlined in this document.
2. All existing pavement types shall be constructed at the existing depth of asphalt and crushed surfacing, in accordance with applicable Local Agency Standards (including any fabric or membranes); Replacement section of asphalt and crushed rock shall not be less than the minimum section specified in Local Agency's Design Standards.
3. All concrete road cuts shall be pre-approved before beginning work (except in the case of an emergency situation). Concrete roads shall require full panel replacement unless approved otherwise by local agency. All concrete joints shall require an approved tie bar and dowel retrofit. Depth of concrete replacement shall match the existing thickness, or shall be in accordance with Local Agency's Standards. Care shall be made not to undermine the existing panels. If the adjacent panels are disturbed or damaged, they also shall be replaced at the discretion of the Local Agency. All joints shall be sealed with an approved material.
4. Asphalt over concrete road cuts – if known - shall be pre-approved before beginning work (except in the case of an emergency situation). Saw cutting or other approved practice for removal of the concrete shall be allowed at the discretion of Local Agency. The asphalt portion of the cut shall be constructed according to the pavement cut policy.
5. All areas outside of the travel lanes that are affected by the work shall be restored to their original condition. All shoulders shall be restored to their original condition.

### **EXCEPTIONS:**

1. Valve and manhole repairs shall be exempt from the patching requirements of this policy. Valve and manhole patching requirements shall be per each Local Agency's Standards. All warranty and construction requirements shall be met. No longitudinal construction joints shall be allowed in the wheel path.

## TECHNICAL REFERENCE D

### Regional Pavement Cut Policy

2. Potholing to find utilities shall be allowed. To be exempt from the gap and patching policy, cuts shall be a maximum of two-feet square (2'-0") with no longitudinal joints in the wheel path and shall be backfilled with controlled density or other approved fill from six inches above the utility to six inches below bottom of asphalt. Round vs. square cuts are preferred.

## TECHNICAL REFERENCE D Regional Pavement Cut Policy

### **NEW DEVELOPMENT**

The moratorium policy will be explained both as to costs and to construction practices by the Local Agencies as part of the permitting/zoning process for new construction or major remodeling projects. Individual permittees/utilities will not be responsible for this function. Individual permittees/utilities will be responsible for doing the work and the costs associated with the moratorium policy as they open roadways for work. Cost recovery from developers will be calculated and coordinated by permittee/utility.

### **WARRANTY REQUIREMENTS**

1. Pavement cuts on roadways ten years old or less will have a warranty period of five years. The patch in the roadway shall be repaired as necessary until the warranty has passed.
2. All other roadways shall require a minimum three-year warranty period. All warranties shall become void if rehabilitation work is performed to the road within the patching limits.
3. For road cuts performed by a Utility using its internal capability, that Utility or assignee will be responsible for repairs required during the warranty period.
4. All curb, sidewalks and structures that are affected by the excavation shall be included in this policy and have a warranty for five years.
5. All warranty work requires that an agency inspector be on site. The permittee shall be required to coordinate inspection with the appropriate department within the Agency.
6. The following defects identified by the local agency engineer shall be covered by warranty:
  - a. Sunken pavement patches greater than or equal to one-quarter inch (Measured by a ten-foot straight edge).
  - b. Failure to meet agency visual rating standard for patching and joints to medium or high).
  - c. Poor workmanship.
  - d. Inadequate compaction per Agency standard.
  - e. Sunken or damaged curb and sidewalks in excavation work area.
  - f. Sunken or damaged drywells and catch basins in excavation work area.

## TECHNICAL REFERENCE D Regional Pavement Cut Policy

7. Notice of Repairs.
  - a. If emergency repairs are needed due to safety concerns, the permittee shall have twenty-four hours in which to make such repairs from time of verbal notice by the Local Agency.
  - b. For non-emergency repairs on arterial roads the permittee shall have forty-eight hours to make such temporary repairs.
  - c. Residential streets, the permittee shall have up to seven days to make such temporary repairs.

The local agency may provide for repairs not completed within the specified timeframe and permittee will be assessed all costs associated with the repairs. The costs shall be based on actual costs or the average bid items for comparable projects for the year preceding, plus ten percent overhead fees. If repairs are made other than seam sealing to the warranted patch, a new warranty will be implemented for the new patch.

The permittee shall have two days to notify their asphalt company of the needed permanent repairs. If the work is not done in a timely manner and following notification the work shall be privately contracted or Local Agency maintenance crews will perform the needed repairs. The permittee shall be assessed the associated fees for the repairs. All utility cut construction shall follow the construction and warranty requirements per local agencies standards.

### **TEMPORARY PATCHING**

1. During winter asphalt concrete paving plant closures or outside of temperature specifications (see section 5-04 of the WSDOT/APWA Standard specification). The permittee shall install and maintain a temporary patch until it can construct a permanent patch. A temporary patch will be required if the road must be opened to traffic before a permanent patch can be made.
2. The temporary patch shall consist of two inches of crushed surfacing and two inches of cold-mix asphalt pavement and/or steel plates, or upon approval of the Agency Engineer, crushed surfacing top coarse may be used. On arterials, when a temporary patch is required for more than two months, Portland Cement Concrete shall be used to construct the temporary patch if weather permits (Contact Local Agency for mix design requirements). The permittee shall maintain the temporary patch until the patch has been permanently restored.

### **PERMITS**

1. All work in the 'Public Right-of Way' requires a permit issued by the local agency. Permittee shall take out all permits and perform all work.
2. The permittee shall fax or send a letter to the appropriate Local Agency permit center designating their assignees. The permittee will be required to submit a construction and traffic control plans required by local agencies when applying for a permit. If the Agency Engineer determines that abuse of obligations are prevalent, future construction permits shall not be issued until the permittee has fulfilled all obligations to existing permits. Written notification by Local Agency will be sent prior to this action.



## TECHNICAL REFERENCE D

### Regional Pavement Cut Policy

3. The permittee shall provide a detailed "As-built" record of the pavement cut after construction is completed. The permittee shall provide details indicating existing pavement section, new pavement section and any unusual conditions at the location of the constructed utility. The location shall include the name of the road the work is being performed on and the name of the closest intersections in each direction. Distance measurements shall be from intersecting streets. This information will be provided to the Local Agency's Permit department for a permanent record. This information shall be returned no later than seven days after the completion of the permitted project by mail, fax, or other electronic means by either permittee or patching contractor. The intent of this process is to record small patching details. Larger projects shall be reviewed and approved prior to construction.
4. Each Local Agency may provide permittee to contribute normal patching costs to local agencies to accomplish paving or full depth replacement of the roadway. (This does not apply to work done within sewer projects).
5. The Local Agency should be notified of existing problems with the adjacent roadway to a proposed patch. Every effort will be made to leverage both utility and agency dollars for street improvements.

### **RESPONSIBLE PARTY**

The permittee shall be responsible for all construction and warranty requirements of this policy. Utilities will provide identity of excavator/permittee as known to local agencies. Local agencies will attempt to get permittee to correct warranty defects. If permittee is a subcontractor for utilities, the utilities will assume responsibility if permittee can not/will not make repairs.

### **COMPLIANCE**

Failure to comply with any part of this policy may result in denial of future permits.

After 3 notices of noncompliance, the Agency shall send a notice to comply within 10 working days or all future permits may be denied until the problems have been corrected.

A meeting shall be arranged with the appropriate Agency and a plan of action to prevent future noncompliance shall be presented before issuance of any new permits.

An appeal can be applied for in writing to the appropriate Agency.

Noncompliance Activities include:

1. Failure to take out a permit.
2. Failure to maintain temporary patches.
3. Failure to make permanent repairs.
4. Failure to make emergency repairs.
5. Failure to make warranty repairs.
6. Failure to send back As-Built information.
7. Failure to inform agency of asphalt completion date.
8. Failure to follow traffic control measures, as required.

TECHNICAL REFERENCE D  
Regional Pavement Cut Policy  
**EXEMPTIONS FOR MORATORIUM ROADWAYS**

It is understood that field conditions may warrant a waiver or an exemption from these regulations. Developers, Contractors or Owners may appeal for a waiver of the moratorium to allow for excavation into a street that meets the criteria for the moratorium tier.

The appeal process completion in NO WAY obligates the affected Agency Engineer to allow such an excavation, and any such decisions are at the Agency Engineer's discretion.

- Submit a letter of intent to the affected Agency Engineer outlining their proposed project and the impact of the project.
- Establish that all alternative avenues have been investigated and fail to meet the needs of the project.
- Acknowledge the requirements of restoration of the area affected, and that there will be required special inspection, the cost of which shall be borne by the applicant of the waiver.
- Propose a meeting with the Agency Engineer to discuss the project.
- Establish a timeline of the project through completion.

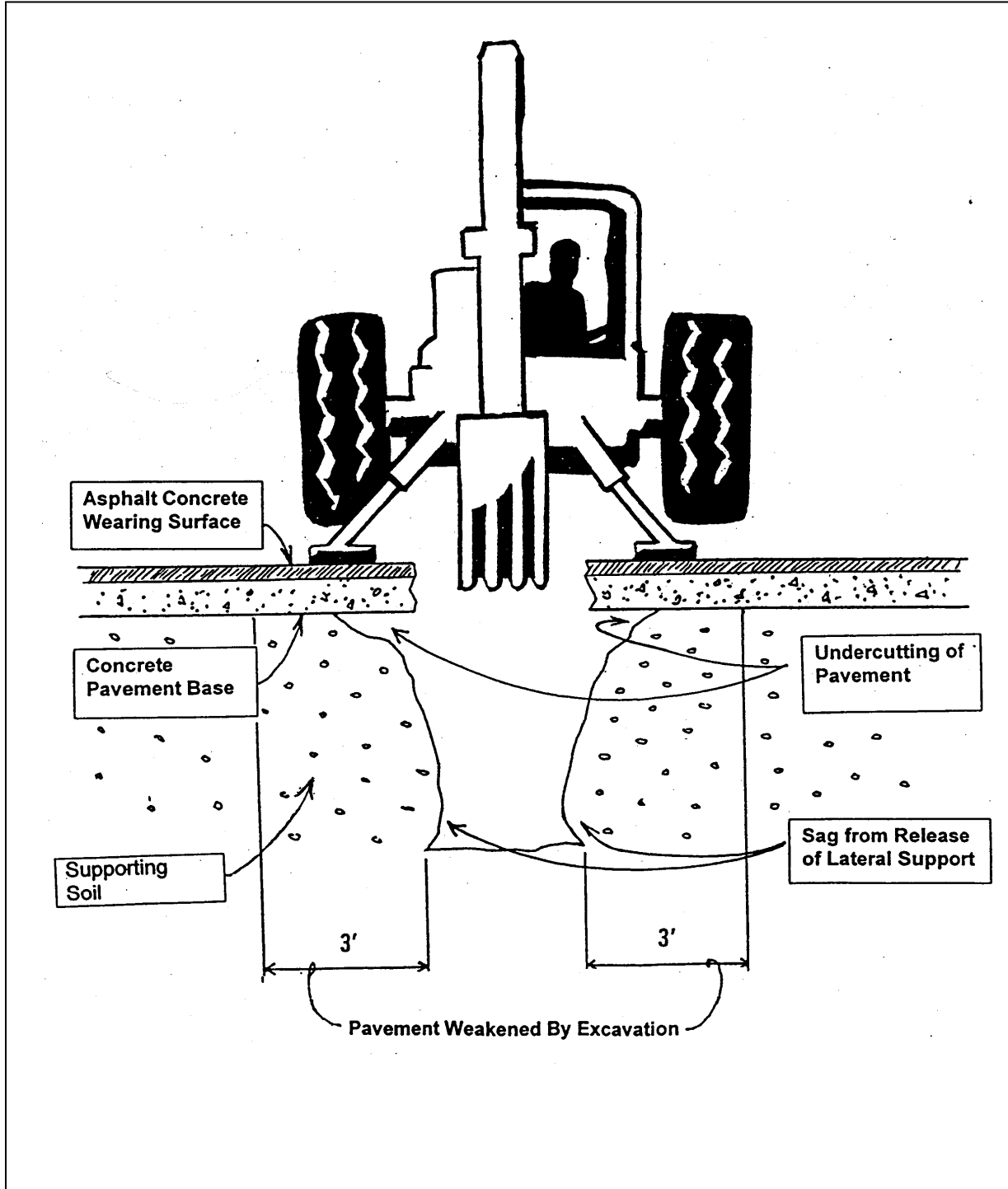
**POLICY REVIEW**

The local agencies will host a meeting with each other and other interested stakeholders at the end of each construction season for the purpose of reviewing the effectiveness of the policy for the completed construction season and suggested improvements for future construction seasons.

**REFERENCES**

- “Trench Restoration Requirements”. City of Bellevue
- “Utility Trench Cut Restoration Specifications”. Metropolitan Transportation Commission (January 1997)
- “Asphalted Pavement Warranties”. Wisconsin Department of Transportation (June 2001)
- “Impact of Utility Cuts on Pavement Performance”. City of Seattle
- “Managing Utility Cuts” APWA (August 1997)
- “Gas Industry’s Use of Public Right-of-Way” A.G.A. White Paper (September 1998)
- “Pavement Cut and Repair Standards Manual” DPW&T City of Dallas (October 2003)

Typical Trench Excavation  
EXHIBIT A



## ASPHALT AND CONCRETE PAVEMENT REPAIR

Permittee Name: \_\_\_\_\_

Job Address: \_\_\_\_\_ Coordinates: \_\_\_\_\_  Street  
(if no house number, please list hundred-block) (Example: 15N 24W)  Alley

Project/Task #: \_\_\_\_\_ RC / Area: \_\_\_\_\_

Date Cut: \_\_\_\_\_ Crew: \_\_\_\_\_

PO/Job #: \_\_\_\_\_ City/County Permit #: \_\_\_\_\_

Unusual Conditions/Special Instructions: \_\_\_\_\_

|  |            |      |          |        |
|--|------------|------|----------|--------|
| <b>Tier#:</b><br><small>(Please circle)</small>  | 1          | 2    | 3        | 4      |
| <b>Policy:</b><br><small>(Please circle)</small> | Moritorium | Full | Modified | Trench |

| <u>Condition of Cut</u><br><small>(Circle any that apply)</small> | <u>Type of Work</u> | <u>Type of Repair</u> | <u>Existing Road Condition</u> | <u>Overcut Sealant</u><br><small>(Approved List)</small>   |
|---|---------------------|-----------------------|--------------------------------|--|
| 6" Gravel <small>(required)</small>                               | Gas                 | Asphalt               | Depth of Asphalt _____         | Dow Corning -<br>890-SL Self Leveling<br>Silicone Joint Sealant                                      |
| Cold Mix  | Electric            | Concrete              | Depth of Gravel _____          | Sonneborn -<br>Sonolastic SL1 One-<br>Compound Elastomeric,<br>Self Leveling<br>Polyurethane Sealant |
| Winter Mix  | Water               | Sub Base Type _____   |                                |  |
| Sawcut  | CATV                |                       |                                |  |
| Grind   | Communications      |                       |                                |  |
|   | Sewer               |                       |                                |  |
|   | Other _____         |                       |                                |  |

**Asphalt**

|       |   |        |
|-------|---|--------|
| Width | X | Length |
| _____ | X | _____  |
| _____ | X | _____  |
| _____ | X | _____  |
| _____ | X | _____  |

**Concrete**

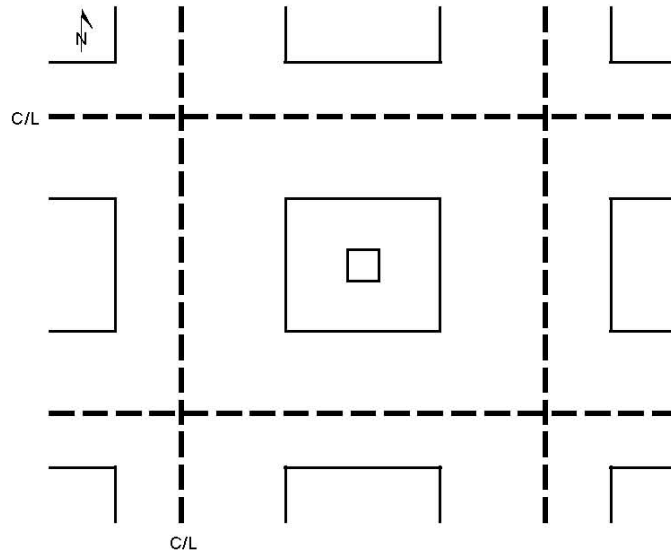
|       |   |        |
|-------|---|--------|
| Width | X | Length |
| _____ | X | _____  |
| _____ | X | _____  |

striping (linear foot) \_\_\_\_\_

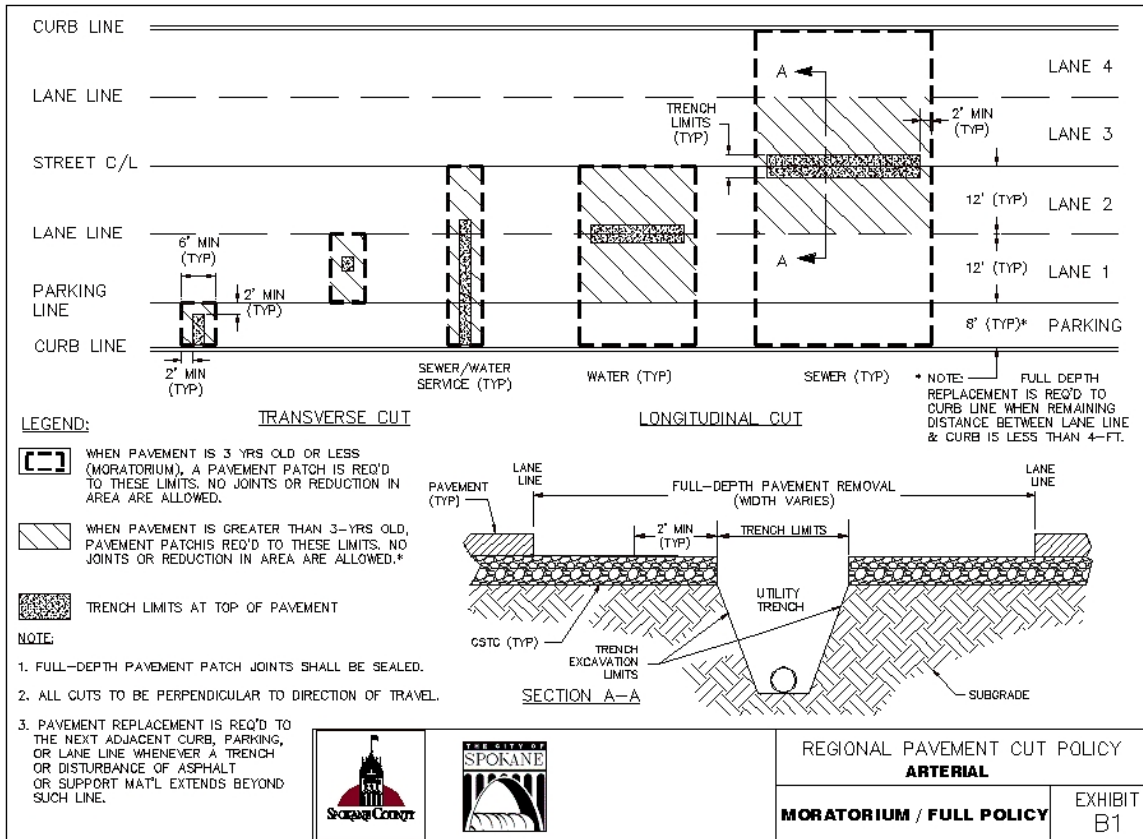
Date Sent for Repair: \_\_\_\_\_

Date Completed: \_\_\_\_\_

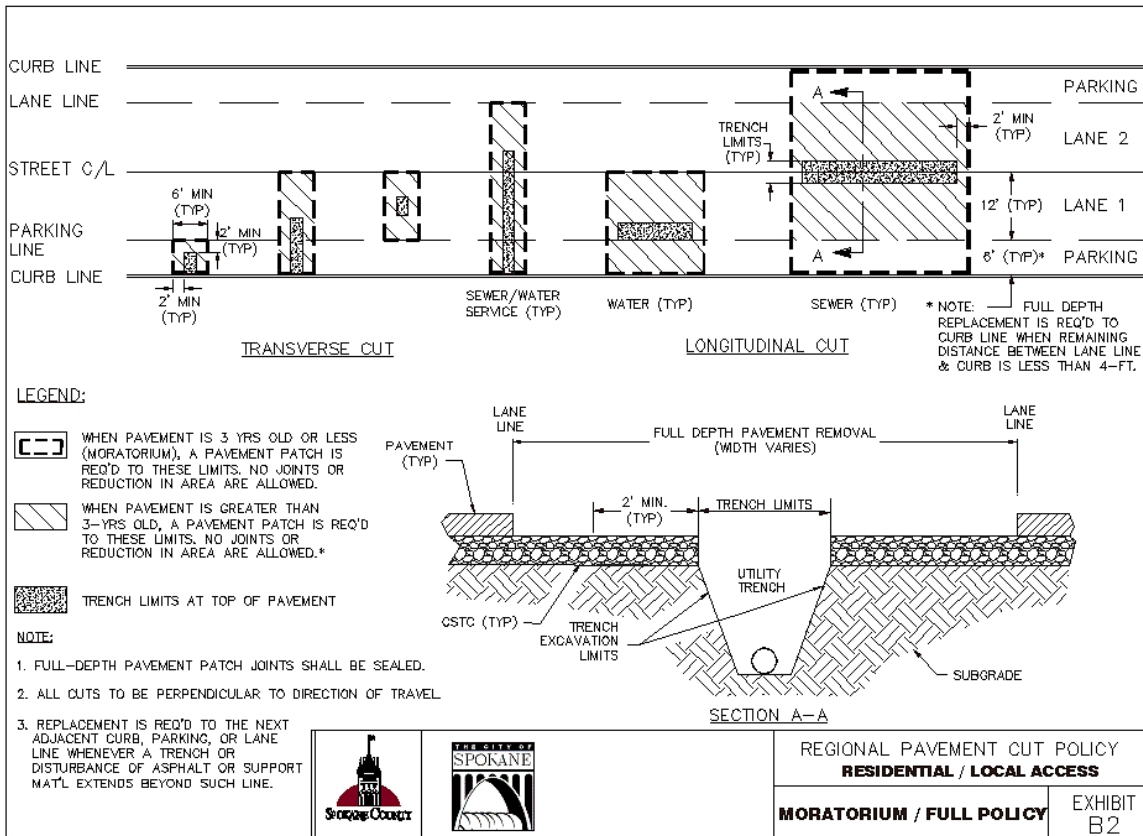
Patching Co. Signoff: \_\_\_\_\_  
(patching company to fax to local agency at completion)



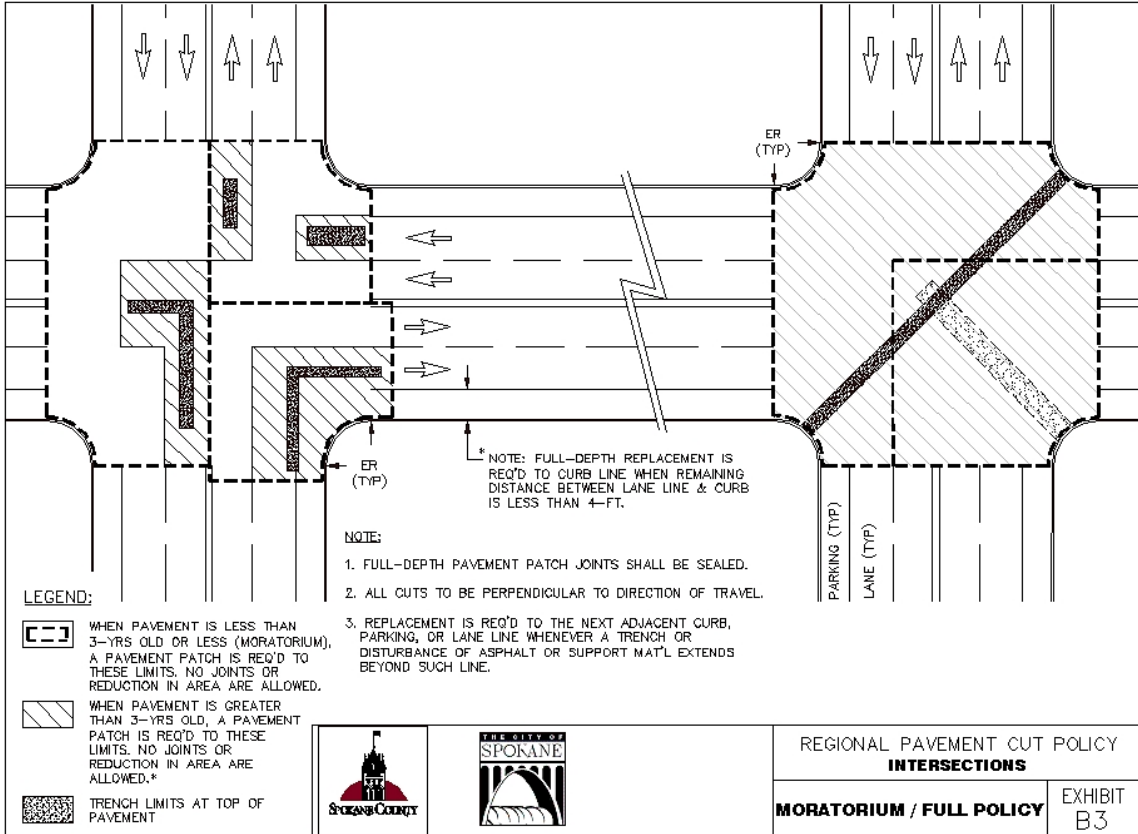
**EXHIBIT B1 - MORATORIUM/FULL POLICY - ARTERIAL**  
**“EMERGENCY ONLY FOR MORATORIUM OR PRIOR APPROVAL”**



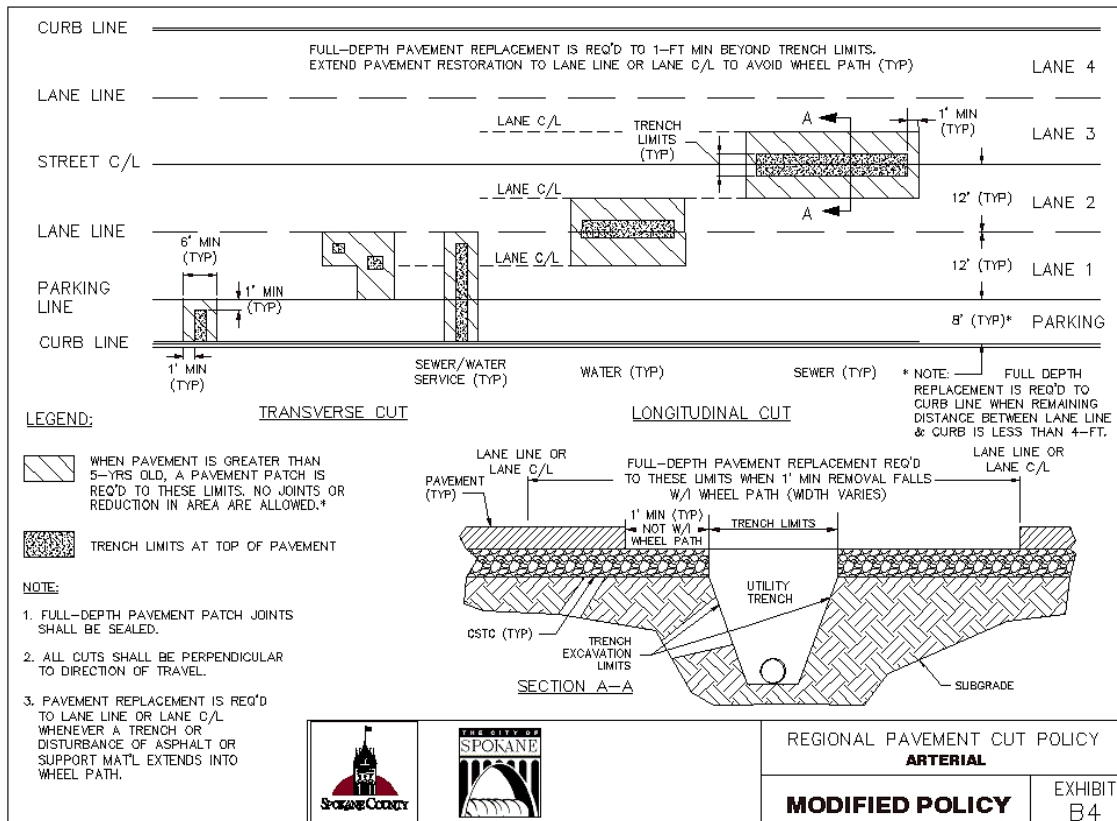
**EXHIBIT B2 - MORATORIUM/FULL POLICY - RESIDENTIAL /LOCAL ACCESS**  
**“EMERGENCY ONLY FOR MORATORIUM OR PRIOR APPROVAL”**



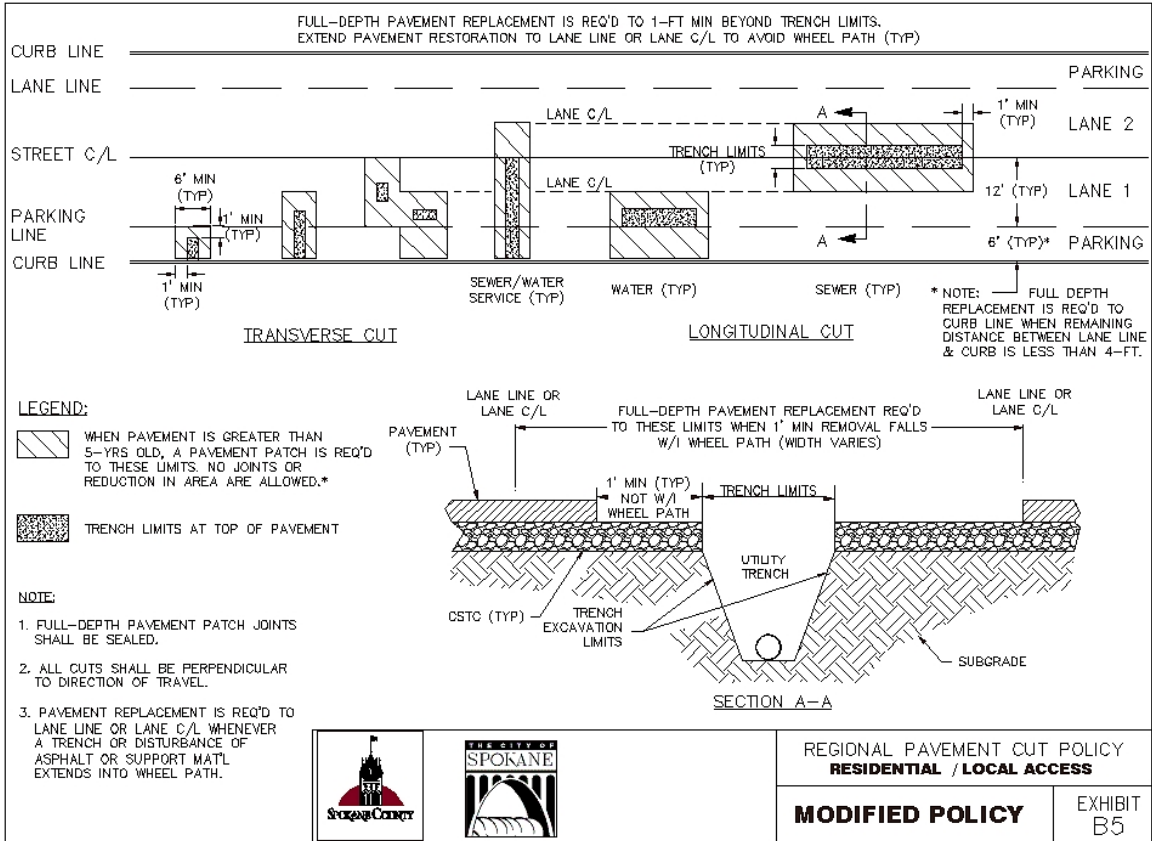
**EXHIBIT B3 - MORATORIUM/FULL POLICY – INTERSECTIONS**  
**“EMERGENCY ONLY FOR MORATORIUM OR PRIOR APPROVAL”**



**EXHIBIT B4 - MODIFIED POLICY - ARTERIAL**  
**“EMERGENCY ONLY FOR MORATORIUM OR PRIOR APPROVAL”**

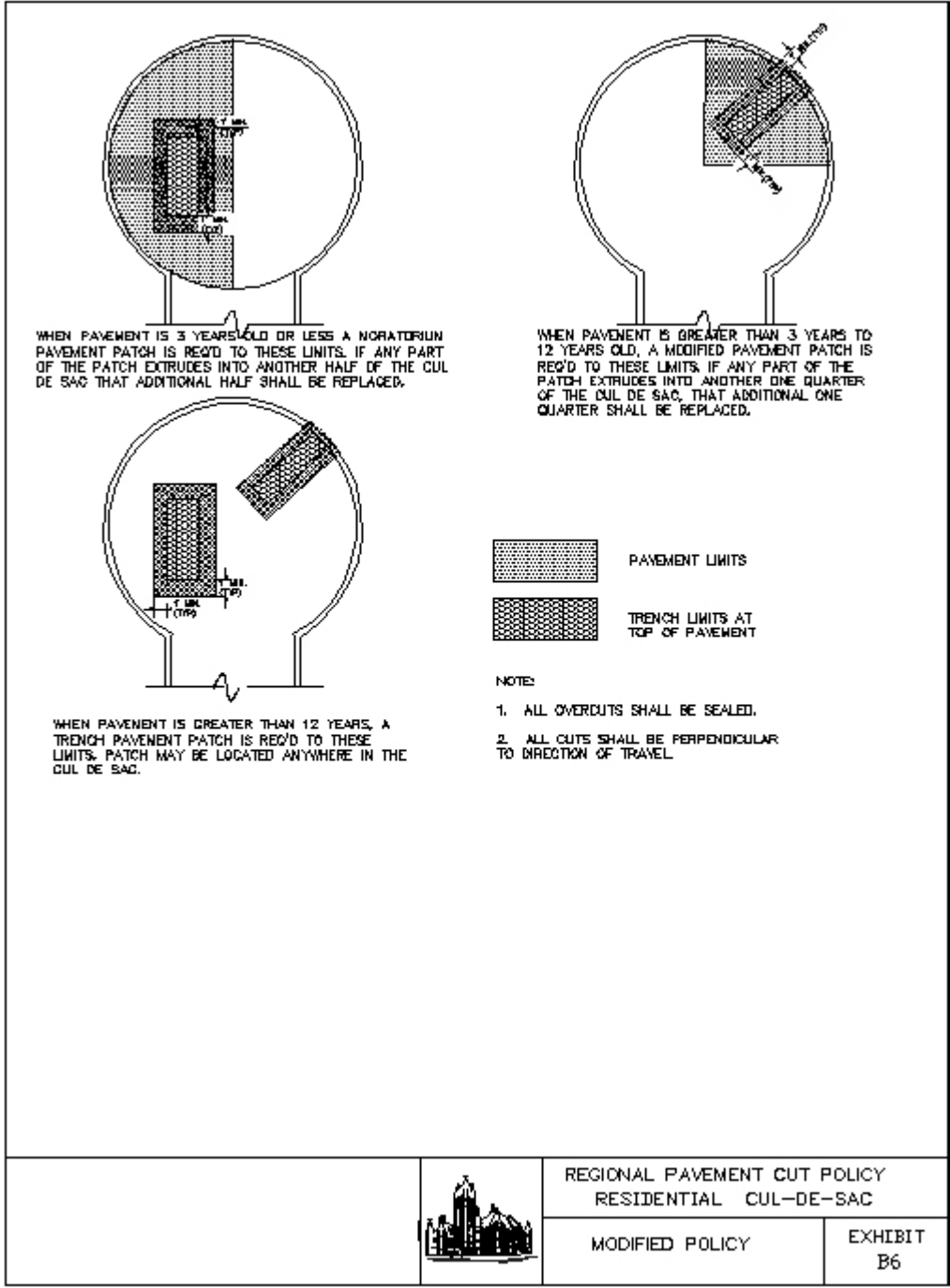


**EXHIBIT B5 - MODIFIED POLICY – RESIDENTIAL/LOCAL ACCESS  
“EMERGENCY ONLY FOR MORATORIUM OR PRIOR APPROVAL”**





**EXHIBIT B6 - MODIFIED POLICY – CUL-DE-SAC  
 “EMERGENCY ONLY FOR MORATORIUM OR PRIOR APPROVAL”**



REGIONAL PAVEMENT CUT POLICY  
 RESIDENTIAL CUL-DE-SAC

MODIFIED POLICY

EXHIBIT  
 B6

# GENERAL PROVISIONS

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## **GENERAL PROVISIONS**

Besides the requirements contained in the Washington State Department of Transportation Standard Specifications, the following General Provisions will be used on all projects, private or public, constructed within Spokane County. These provisions represent additions and/or changes to the Standard Specifications and govern over the Standard Specifications.

### **DIVISION 1**

#### 1-01.3 DEFINITIONS

Section 1-01.3 shall be revised as follows:

State shall mean the County of Spokane, Washington a political subdivision, acting through its authorized representatives.

Commission or Washington State Transportation Commission shall mean the Board of County Commissioners of Spokane County, an elected body having authority over County matters as provided by law. All references to Commission in the Standard Specifications shall conform to this definition.

Department, or Department of Transportation shall mean the Spokane County Engineer or his authorized representative.

Secretary or Secretary of Transportation shall mean the Spokane County Engineer or his authorized representatives.

Engineer or Project Engineer shall mean the Spokane County Engineer or his/her authorized representative.

### **DIVISION 2**

#### 2-03.3(14)C COMPACTING EARTH EMBANKMENTS

Method B. Change 90 percent maximum density to 92 percent.

## 2-03.3(14)D COMPACTION AND MOISTURE CONTROL TESTS

Delete these provisions and substitute the following provision:

Maximum density and optimum moisture will be determined using the AASHTO T180-90, with Method A or D as appropriate; and AASHTO T-224-90, with the following modifications:

1. AASHTO T-180-90
  - a. Notice 8 (Method D). Rock will not be replaced with soil as part of the laboratory determination for maximum dry density and optimum moisture content.
  - b. Oven drying or direct heating will be the only acceptable methods of moisture content determination.
  - c. Oven drying to dry back saturated or very wet soils, at temperature above 140 degrees F. will be permitted only with frequent mixing.
  
2. AASHTO T-224-90
  - a. Specific gravity for rock will be determined in the laboratory. The fraction of 3/4 inch material in the backfill may be determined in the field by sieving the sample in a wet or moist condition.

In-place density will be determined utilizing AASHTO T-238-86.

In-place moisture content will be determined utilizing AASHTO T-239-90.

The Contractor shall provide a safe environment for the compaction control test to be performed. This may include temporarily stopping the backfill operation such as the conveyor belt, backhoe, roller, etc. long enough for the safe completion of the test.

## **DIVISION 3**

NOT USED

## **DIVISION 4**

### **4-04.3(5) SHAPING AND COMPACTION**

The first sentence of the first paragraph in Section 4-04.3(5) is replaced by the following:

Immediately following spreading and final shaping, each layer of surfacing shall be compacted to at least 95 percent of the density determined using the AASHTO T180-90, with Method A or D as appropriate; and ASSHTO T-224-90 with the following modifications:

1. AASHTO T-180-90
  - a. Notice 8 (Method D). Rock will not be replaced with soil as part of the laboratory determination for maximum dry density and optimum moisture content.
  - b. Oven drying or direct heating will be the only acceptable methods of moisture content determination.
  - c. Oven drying to dry back saturated or very wet soils, at temperatures above 140 degrees F. will be permitted only with frequent mixing.
2. AASHTO T-224-90
  - a. Specific gravity for rock will be determined in laboratory. The fraction of  $\frac{3}{4}$  inch material in the backfill may be determined in the field by sieving the sample in a wet or moist condition.

In-place density will be determined utilizing AASHTO T-238-86.

In-place moisture content will be determined utilizing AASHTO T-239-90.

The Contractor shall provide a safe environment for the compaction control test to be performed. This may include temporarily stopping the backfill operation such as the conveyor belt, backhoe, roller, etc. long enough for the safe completion of the test.

## **DIVISION 5**

### **5-04.3(12)) JOINTS**

Section 5-04.3(11) shall be supplemented as follows:

#### **JOINING EXISTING PAVEMENT**

Where new pavement joins existing pavement, this joint shall be trimmed to a vertical face and to a neat line. New pavement shall be feathered at transverse joints as required to conform to the requirements of Section 5-04.3(13) for surface smoothness.

#### **FEATHERING ASPHALT CONCRETE PAVEMENT**

Where designated by the Engineer, the Contractor shall feather the asphalt concrete pavement overlay in a manner to produce a smooth riding connection to the existing pavement.

Hot Mix Asphalt (HMA) utilized in the construction of the feathered connections to existing pavement, shall be modified by eliminating the coarse aggregate from the mix at the Contractor's plant or the commercial source from which the Contractor obtains the mix or by raking the joint on the roadway, to the satisfaction of the Engineer.

### **SC5-04a ASPHALT CONCRETE PAVEMENT**

January 1, 1994

#### **TRENCH REPAIR**

Disturbance of an existing asphalt concrete pavement due to trench excavation of less than six feet in width shall be repaired by the Contractor as follows:

1. **Pavement Cutting:** The contractor shall cut the existing pavement along the trench edges with equipment approved by the Engineer. Immediately before placement of a patch, the existing pavement shall be cut with a saw along rectangular lines as shown on the plans or as directed by the Engineer. The pavement shall be removed to provide a firm, neat, straight, vertical edge. The Contractor shall be responsible for maintaining the edge.

Additional cuts with a saw will be required to correct broken or damaged edges.

2. Pavement shall be removed in an approved manner.
3. Trench depth shall provide 24 inches minimum cover over facility to be placed in the trench.
3. A tack coat of Grade CSS-1 or RC250 Asphalt shall be uniformly applied to all edges to be joined and lapping 6 inches over the existing pavement. The lines from the new asphalt pavement shall be raked over the tack coat, feathered and rolled or tamped to seal the joint. The structural section of the patch shall be equal to the section of the existing pavement. The thickness of Hot Mix Asphalt (HMA) shall not be less than 2 inches. HMA may be substituted for aggregate base if compacted layers do not exceed .25 feet with adequate compaction. HMA used for patching shall be HMA 64-28 Class ½". It shall be furnished, placed and compacted in conformance with the standard specifications.

In inclement weather or as determined by the Engineer, trenches located within the traveled way shall be backfilled with 0.10 feet of HMA over 0.5 feet of cement concrete, over an approved backfill material. Cement concrete shall contain 7.5 sacks per cubic yard of Type III cement. Additives may be added as approved by the Engineer to ensure opening of the road to traffic within 2 hours.

Repair of a trench over ten feet in width shall be made according to the standard specifications applying to new road construction. Road structural section materials and dimensions shall be determined by the County Engineer.

## **DIVISION 6**

### **SC6-03 STEEL STRUCTURES**

February 24, 1995

Section 6-03.3(30) shall be replaced with:

#### **JACKING AND BORING**

Spokane County Construction shall be notified (509) 456-3600 at least 48 hours in advance of the start of work.

All jacked or bored crossing will require casing.

Casings shall be equipped with grout nipples at the springline on both sides and at the crown. Maximum spacing between each set of nipples shall be 10 feet. Void spaces

outside the casing shall be filled with grout mixture of 1 part Portland cement and 3 parts sand (by volume). Grouting shall start at the springline at one end and progress along the casing, alternating sides as grout appears in the grout hole at the crown. The grouting shall then proceed to the grout hole at the crown. Grouting shall be accomplished each day at the end of work for that day.

Steel casing pipe shall conform to AWWA C 200. Yield strength of casing pipe material shall be 35,000 psi minimum. Minimum wall thickness shall be 5/8 inch. The Contractor shall be responsible for selecting the gauge consistent with the over-burden requirements, his operation, and requirements of the permitter. Ends of steel casing per sections shall be beveled for field butt-welded joints in accordance with the requirements of AW WA C 206.

Casing installation through soil shall have a hole diameter that shall not exceed the outside diameter of the casing by more than 1-inch. Where unstable soil condition are found to exist, boring or tunneling operations shall be conducted in such a manner as not to be detrimental to the adjacent structures. If excessive voids or too large a bored hole results, prompt remedial measures shall be taken by the Contractor, subject to approval by the Engineer.

A minimum 6-inch thick concrete plug shall be poured at the ends of the casing. The concrete shall be worked around the pipe so that the plug will provide a tight seal.

Special care shall be taken during the installation of the pipe to ensure that no settlement of adjacent areas occurs. Any such settlement caused by the placement of the pipe shall be the Contractor's responsibility. The Contractor shall repair all areas so affected, as directed by the Engineer, at the Contractor's own expense.

## **DIVISION 7**

### SC7-04 STORM SEWERS

JANUARY 1, 1994

#### 7-04.2 MATERIALS

Section 7-05.2 shall be supplemented as follows:

Polyvinyl Chloride Pipe conforming to the minimum requirements for ASTM 3033 or ASTM 3034 may be used as an alternate for concrete or metal pipe when used as connector pipes between drywells and catch basins or inlets where the maximum diameter is 15" and cover is 3 feet measured to the finished grade or as directed by the Engineer.

### SC7-05 MANHOLES. INLETS. AND CATCH BASINS

JANUARY 1, 1994



### 7-05.1 DESCRIPTION

Section 7-05.1 shall be supplemented by the following:

All specifications in this section applying to precast concrete manholes shall also apply to precast concrete drywells.

### 7-05.2 MATERIALS

Section 7-05.2 shall be supplemented as follows:

"Special Backfill for Drywells" shall meet the requirements of section SC9-03.12(4)A

### 7-05.3 CONSTRUCTION REQUIREMENTS

Section 7-05.3 shall be supplemented as follows:

#### **METAL FRAMES AND GRATES**

Cement concrete or clay brick adjustment blocks shall be placed on grouted to provide the proper alignment and grade for the frame and grate. Any existing frame and grate that is removed and not reused shall be placed within the right-of-way where directed by the Engineer and shall remain the property of the County.

Where "Metal Frame Type 2" are to be constructed in existing curbs, the existing curb shall be sawcut and removed. The curb shall then be repoured around the cast iron hood.

### 7-08.3 CONSTRUCTION REQUIREMENTS

Section 7-08.3(1)C and Section 7-08.3(3) shall be amended as follows:

Change all references to 90-percent maximum density to 92-percent maximum density.

## **DIVISION 8**

### SCB-04 CURBS, UTTER, AND SPILLWAYS

JANUARY 1, 1994

### 8-04.3 CONSTRUCTION REQUIREMENTS

Section 8-04.3 shall be

Cement Concrete Cross Gutters shall be constructed at locations shown on the plans in accordance with the standard specifications, these special provisions, and the standard plans.

### 8-04.3(1) CEMENT CONCRETE CURBS, GUTTERS, AND SPILLWAYS

Section 8-04.3(1) shall be supplemented as follows:

The curb and gutter shall be water tested by the Contractor in the presence of the Engineer and any irregularities causing water to stand shall be corrected by the Contractor at his expense. All costs incurred for the gutter water test shall be incidental to and included in the unit contract price for "Cement Concrete Curb, Type B"

### 8-04.3 .2) EXTRUDED ASPHALT CONCRETE CURBS. AND GUTTERS

Section 8-04.3(2) shall be supplemented as follows:

Asphalt Concrete Curb, Type C shall be monolithically placed with the HMA wearing surface.

## **DIVISION 9**

### 9-03.12(4)A SPECIAL BACKFILL FOR DRYWELLS

Section 9-03.12(4) shall be supplemented as follows:

Special backfill for drywells shall consist of washed gravel conforming to the following gradation:

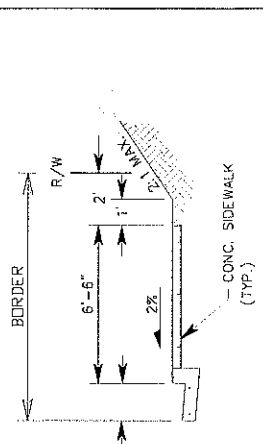
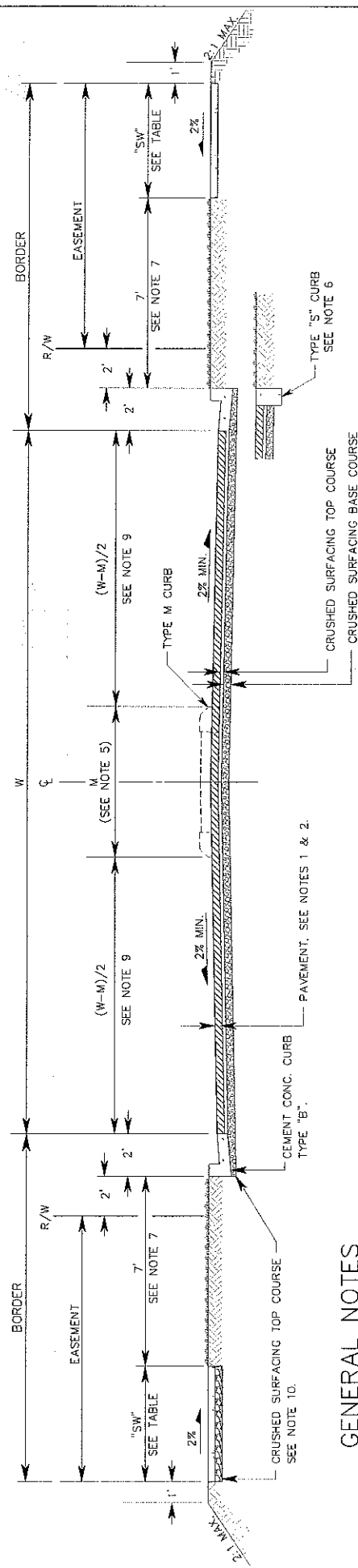
| <u>Sieve</u> | <u>% Passing</u> |
|--------------|------------------|
| 3"           | 100              |
| 1"           | 20               |
| U.S. #200    | 2 max.           |

All percentages are by weight. A minimum of 90% of the aggregate, by weight, shall be unfractured, naturally occurring material.

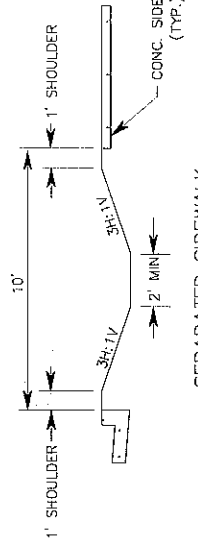
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| A-2   | Roadway Section - Shoulders               | 11/1/09   |
| A-3   | Curbs & Gutters                           | 11/1/09   |
| A-4   | Urban Driveways - Separated Sidewalks     | 11/1/09   |
| A-5   | Curb Ramp                                 | 11/1/09   |
| A-6   | Traffic Island                            | 4/24/03   |
| A-7   | Cement Concrete Approaches                | 4/24/03   |
| A-8   | Rural Road Approaches                     | 11/1/09   |
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| A-9   | Bike Ways & Pedestrian Paths              | 11/1/09   |
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| A-11  | Sidewalk Retaining Wall                   | 11/1/09   |
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| A-13  | Entrance Steps to Abutting Properties     | 5/15/95   |
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| A-15  | Utility Locations – Curbed Road           | 11/1/09   |
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| B-18  | Concrete Gutters                          | 4/24/03   |
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| <b>PLAN</b> | <b>TITLE</b>  | <b>LAST DATE</b> |
|-------------|---|------------------|
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| U-19        | Pressure Service Stub from Gravity Sewer Main         | 5/23/06          |
| U-20        | Manhole Invert Elevation Detail                       | 5/23/06          |
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CONTIGUOUS SIDEWALK  
(LOCAL ACCESS ONLY)



SEPARATED SIDEWALK  
(SEE NOTE 7)

SEPARATED SIDEWALK

| ROAD TYPE          | WIDTH S | "SW" |
|--------------------|---------|------|
| RESIDENTIAL ACCESS | 5' MIN  |      |
| OTHER              | 6' MIN  |      |

GENERAL NOTES

- PAVEMENT MAY BE ASPHALT CONCRETE OR PORTLAND CEMENT CONCRETE AS DETERMINED BY THE COUNTY ENGINEER.
- PAVEMENT, CRUSHED SURFACING TOP COURSE AND CRUSHED SURFACING BASE COURSE THICKNESSES SHALL BE DETERMINED BY A PAVEMENT DESIGN.
- DITCH SLOPES AND SIDE SLOPES SHALL BE NO STEEPER THAN RATIOS SHOWN UNLESS RECOMMENDED BY A SOILS REPORT AND APPROVED BY THE COUNTY ENGINEER.
- EXCAVATION SLOPES HIGHER THAN 8' SHALL BE DETERMINED BY SOILS TESTING.
- "W" SHALL BE SHOWN ON CONSTRUCTION PLANS.
- WHERE LEFT-TURN LANES ARE REQUIRED, M=12' WHEN MEDIAN IS PAINTED. WHEN RAISED MEDIAN WITH TYPE M CURB USED M=14". OTHERWISE M=0
- SHALL BE USED ONLY WHERE APPROVED BY THE COUNTY ENGINEER ON LOCAL ACCESS ROADS ONLY.
- IF PLANTING STRIPS ARE USED AS A BIOFILTRATION SWALE, THE WIDTH SHALL BE 10' MIN.
- REFER TO ROADSIDE SAFETY SECTION FOR LOCATION OF RIGID OBJECTS.
- WHEN RAISED MEDIANS ARE CONTIGUOUS BETWEEN INTERSECTIONS, (W-M)/2 SHALL NOT BE LESS THAN 18 1/2 FEET.
- CRUSHED SURFACING SECTION SHOULD BE EXTENDED UNDER CURB. CRUSHED SURFACING MAY BE REQUIRED UNDER SIDEWALKS IN FINE GRAIN OR POORLY DRAINED SUBGRADE.

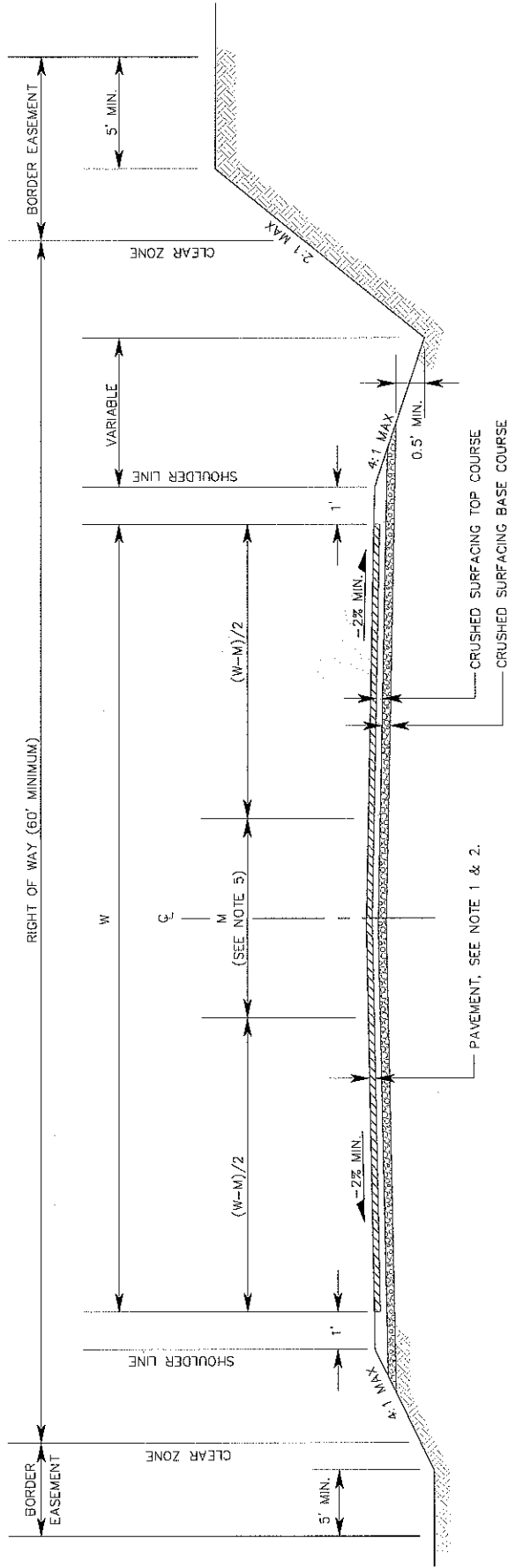
| NO. | DATE  | BY | CHKD. | APPR. | REVISION  |
|-----|-------|----|-------|-------|---|
| 5   | 11/09 | JP |       |       | ADDED SEPARATED SIDEWALK DETAIL                   |
| 4   | 1/00  | CP | JSH   | WAJ   | AMENDED NOTE 5, ADDED NOTE 9                      |
| 3   | 5/98  | CP | JSH   | WAJ   | ADDED SIDEWALK TABLE                              |
| 2   | 12/94 | JB | JSH   | RCH   | ADDED NOTES 7, 8 & 9 & CONTIGUOUS SIDEWALK DETAIL |
| 1   | 5/94  | JB | JSH   | RCH   | BORDER DIM. & CHANGED NOTE 5 & EASEMENT WIDTH     |



APPROVED: \_\_\_\_\_  
COUNTY ENGINEER  
DATE: 1/23/00

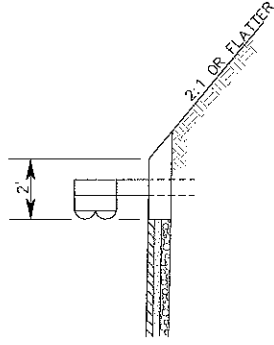
SPOKANE COUNTY  
DEPARTMENT OF PUBLIC WORKS  
SPOKANE, WA 99260 458-3600

STANDARD \_\_\_\_\_  
ROADWAY SECTION - CURBED



### GENERAL NOTES

1. PAVEMENT MAY BE ASPHALT CONCRETE OR PORTLAND CEMENT CONCRETE AS DETERMINED BY THE COUNTY ENGINEER.
2. PAVEMENT, CRUSHED SURFACING TOP COURSE AND CRUSHED SURFACING BASE COURSE THICKNESSES SHALL BE DETERMINED BY A PAVEMENT DESIGN.
3. DITCH SLOPES AND SIDE SLOPES SHALL BE NO STEEPER THAN RATIOS SHOWN UNLESS RECOMMENDED BY A SOILS REPORT AND APPROVED BY THE COUNTY ENGINEER. EXCAVATION SLOPES HIGHER THAN 8' SHALL BE DETERMINED BY SOILS TESTING.
4. "W" SHALL BE SHOWN ON CONSTRUCTION PLANS.
5. WHERE LEFT TURN LANES ARE REQUIRED  $M=12'$ , OTHERWISE  $M=0$ .
6. MEDIAN ISLANDS ON SHOULDERED ROADS REQUIRE "SPECIAL SECTION" APPROVED BY COUNTY ENGINEER.



**WIDENING FOR BARRIER**  
 REFER TO SECTION 3.14  
 FOR BARRIER INSTALLATION

|             |     |   |
|-------------|-----|---|
| 2-11-709 PF | RCH | ADDED NOTE 6, CHANGED NOTE 2.                     |
| 1-5-794 JB  | LSH | BORDER DIMENSION, CHANGED NOTE 5, GRAVEL SHOULDER |
|             |     | REVISION  |
|             |     | NO. DATE BY CKD. APPR.                            |

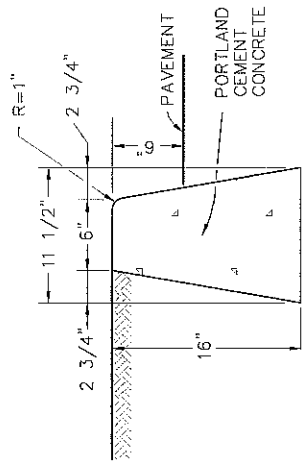
SPOKANE COUNTY  
 DEPARTMENT OF PUBLIC WORKS  
 SPOKANE, WA. 99260 458-3600

APPROVED  
 COUNTY ENGINEER  
 DATE: 7/23/00



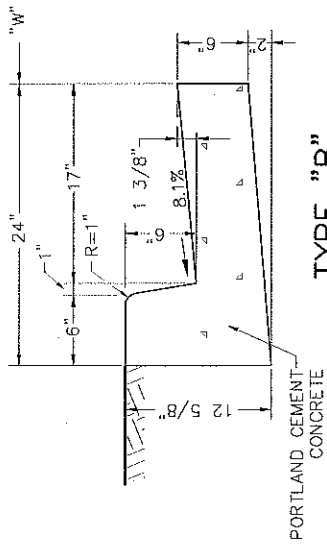
STANDARD  
 ROADWAY SECTION - SHOULDERS

SHEET  
 A-2



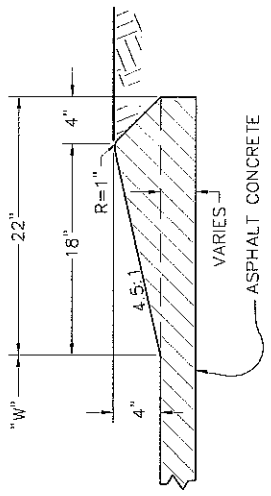
**TYPE "A"**

QUANTITY = 0.036025 C.Y. / L.F.  
SEE NOTE 5



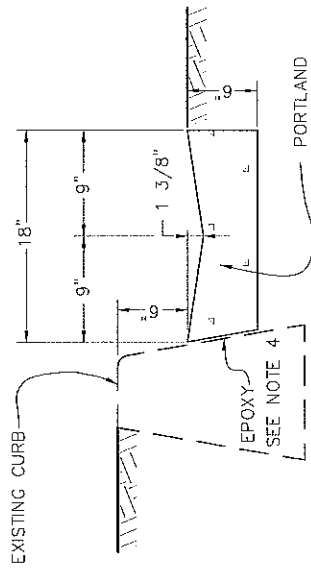
**TYPE "B"**

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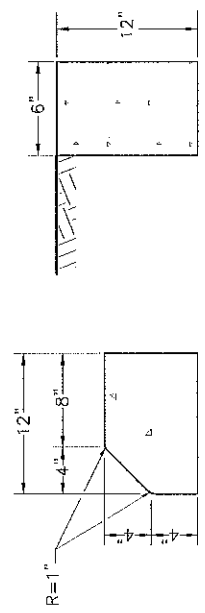
**TYPE "C"**

QUANTITY = 0.023123 TONS / L.F.  
SEE NOTE 5



**TYPE "M"**

QUANTITY = 0.022633 C.Y. / L.F.



**TYPE "S"**

QUANTITY = 0.018519 C.Y. / L.F.

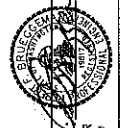
**CONCRETE GUTTER**

QUANTITY = 0.0244149 C.Y. / L.F.

**GENERAL NOTES**

1. PORTLAND CEMENT CONCRETE SHALL BE CLASS 3000 CONFORMING TO THE STANDARD SPECIFICATIONS.
2. WEAKENED PLANE JOINTS FOR PORTLAND CEMENT CONCRETE SHALL BE PLACED AT 2 TIMES SIDEWALK WIDTH OR 12' MAX. & SHALL MATCH SCORES IN SIDEWALK WHERE APPLICABLE.
3. 4" WIDE BY 3/8" EXPANSION JOINTS IN PORTLAND CEMENT CONCRETE SHALL BE PLACED AT CURB RETURNS.
4. EPOXY CEMENT SHALL BE APPLIED AT A 10-15 MIL THICKNESS AND SHALL CONFORM TO THE REQUIREMENTS OF SECTION 9-28 OF THE STANDARD SPECIFICATIONS.
5. TO BE USED ONLY IN SPECIAL CASES WITH APPROVAL OF THE COUNTY ENGINEER.
6. 95% COMPACTION UNDER SIDEWALK AND 95% UNDER CURB.
7. EXPANSION JOINT SHALL BE PLACED TO ENSURE COMPLETE SEPARATION OF CONCRETE.

| NO. | DATE  | BY | CHKD. | APPR. | REVISION  |
|-----|-------|----|-------|-------|---|
| 6   | 11/09 | PF | BIG   |       | REMOVED TYPE "A" INTEGRAL POUR DETAIL.            |
| 5   | 3/03  | BH | BIG   |       | REMOVED TYPE "R" CURB DETAIL & ADDED NOTE 6&7     |
| 4   | 3/03  | BH | BIG   |       | NEW DETAIL FOR INTEGRAL CURB AND SIDEWALK         |
| 3   | 5/00  | CP | USH   |       | SPS NOTE 5 AMENDED TO REMOVE TRINITY WHITE CEMENT |
| 2   | 11/94 | JB | CSN   |       | "W" DIMENSION ADDED TO CURB SECTIONS.             |
| 1   | 1/93  | JB | CSN   |       | RCH DIMENSION CORRECTION - TYPE "R" CURB          |



APPROVED: COUNTY ENGINEER  
DATE: 12/8/96

SPOKANE COUNTY  
DEPARTMENT OF PUBLIC WORKS  
SPOKANE, WA. 99260  
(509) 477-3600

STANDARD  
CURBS & GUTTERS

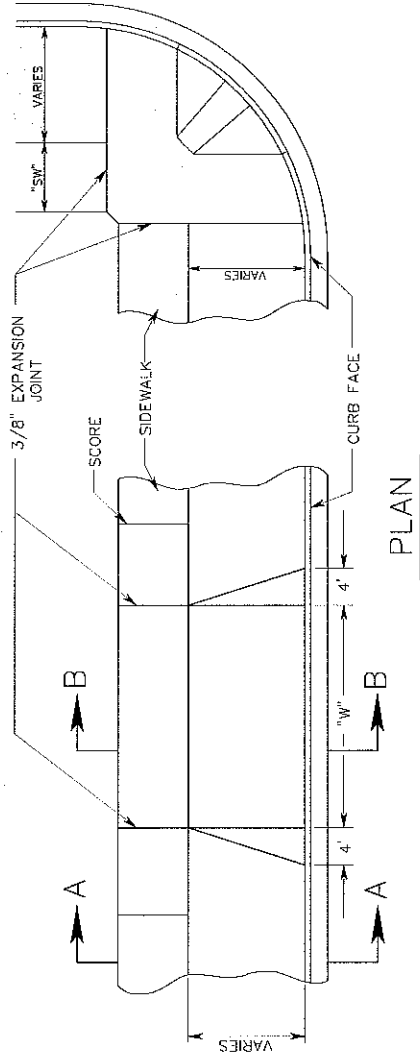
SHEET A-3  
SHEET DATE 04/28/05

## GENERAL NOTES

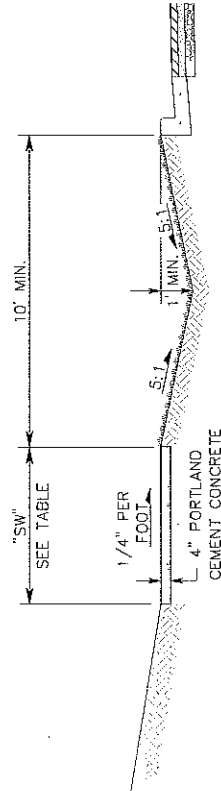
- 4" WIDE BY 3/8" EXPANSION JOINT MATERIAL SHALL BE PLACED IN THE CENTER OF ALL DRIVEWAYS OVER 20' IN WIDTH.
- 4" WIDE BY 3/8" EXPANSION JOINT REQUIRED IF POUR INCLUDES ADDITIONAL DRIVEWAY AREA.
- CONCRETE FOR DRIVEWAYS SHALL BE CLASS 3000 AIR ENTRAINED.
- ALL EXTERNAL EDGES TO BE TROWELLED WITH 1/4" RADIUS EDGER.
- SIDEWALK TO BE SCORED EVERY 5'. 4" WIDE BY 3/8" EXPANSION JOINT TO BE INSTALLED EACH SIDE OF A CURB RETURN AND AT LOCATIONS WHERE SIDEWALK INTERSECTS OTHER SIDEWALKS, DRIVEWAYS AND CURBS, EVERY 50' MAXIMUM.
- THE WIDTH OF COMMERCIAL DRIVEWAYS MAY BE WIDER THAN SHOWN, IF APPROVED BY THE COUNTY ENGINEER.

△ 7. SEE SHEET A-5 (WHEEL CHAIR RAMPS)

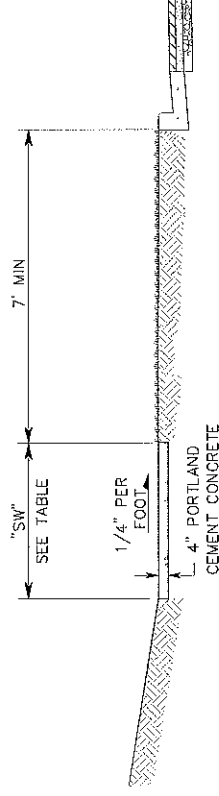
△ 8. SEE SHEET A-7 (CEMENT CONCRETE APPROACHES)



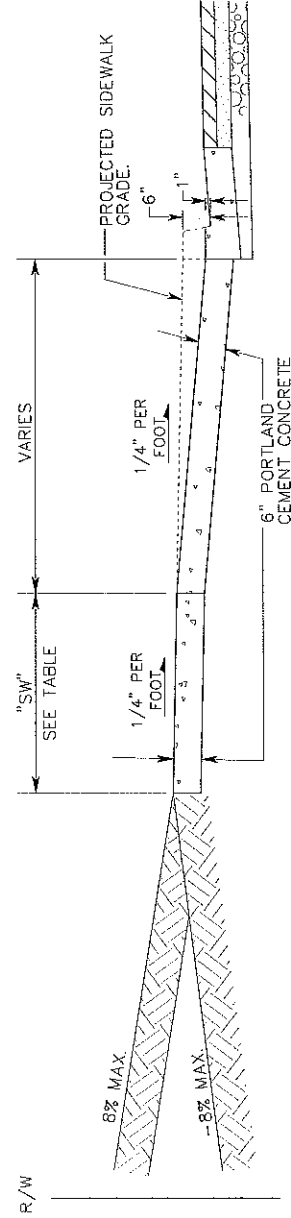
PLAN



SECTION A-A  
(DRAINAGE SWALE)



SECTION A-A  
(PLANTER STRIP)



SECTION B-B

## DIMENSION TABLE

| TYPE  | DISTANCES "SW" |      |
|-------|----------------|------|
|       | MIN.           | MAX. |
| COMM. | 16'            | 40'  |
| RES.  | 16'            | 30'  |

## SIDEWALK

| ROAD TYPE   | WIDTHS "SW"        |        |
|-------------|--------------------|--------|
|             | RESIDENTIAL ACCESS | OTHER  |
| RESIDENTIAL | 5' MIN             | 6' MIN |
| OTHER       | 5' MIN             | 6' MIN |

APPROVED  
COUNTY ENGINEER  
DATE: 1/28/93

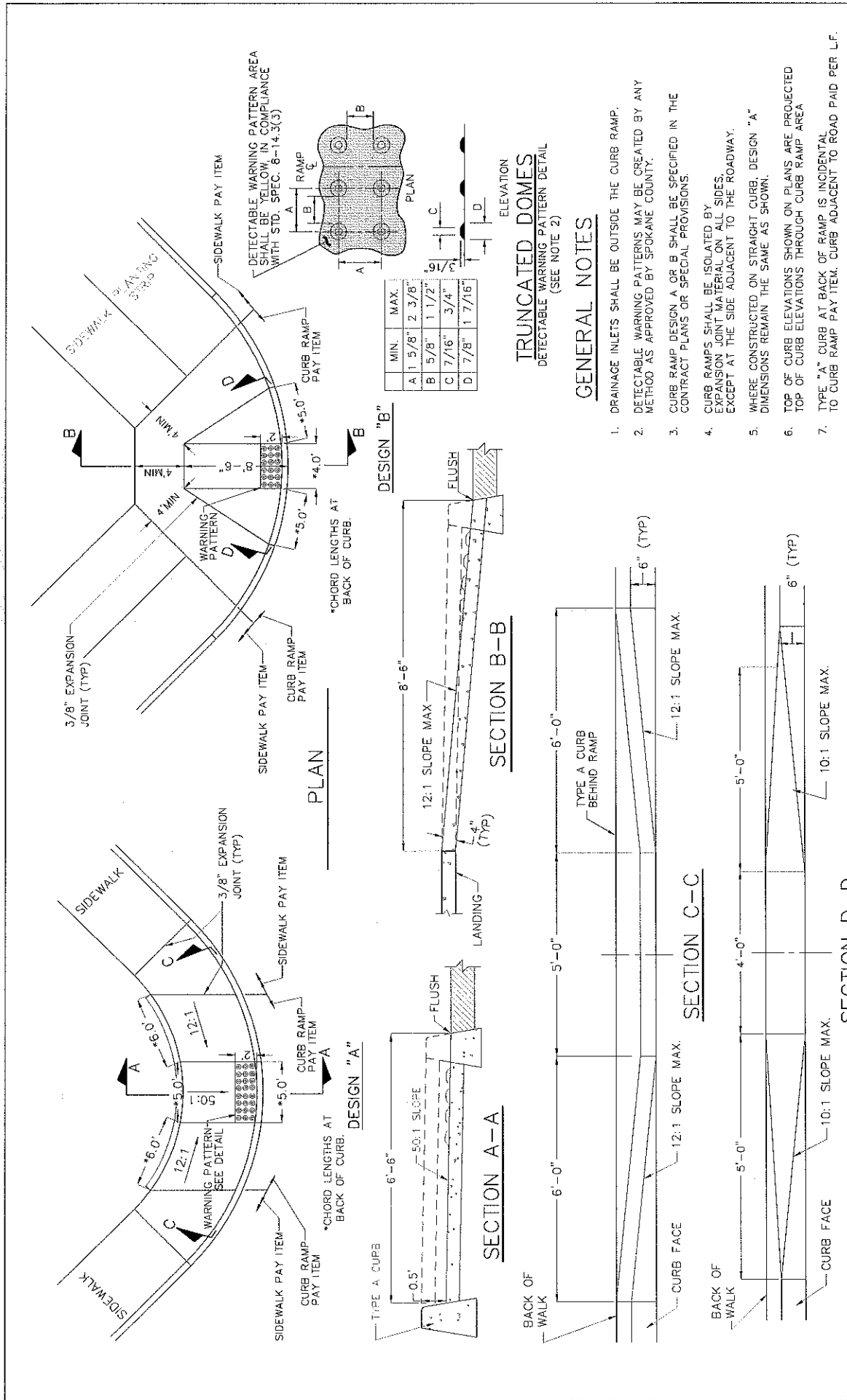
SPOKANE COUNTY  
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SPOKANE, WA. 99260 456-3600

NO. DATE BY TCKD. APPR. REVISION  
 △ 11/09 JPF JGLW RCH REVISED NOTES 1.2. & 5.  
 △ 12/93 JB JGLW RCH REVISED SECTION B-B / NOTES 7 & 8

STANDARD  
URBAN DRIVEWAYS - SEPARATED SIDEWALKS

SHEET A-4





5 11/09 JPH/JAH REVISED SECTION 56 TO CC. REVISED NOTE 2  
 4 03/03 RBH/JAH REVISED PAY LIMITS AND WARNING PATTERN  
 3 07/03 RBH/JAH REVISED SEC B-B  
 3 13/28 CP/JAH ADDED DIMENSION DESIGN A/SECTION C-C  
 2 13/28 CP/JAH ADDED NOTE 7 AMENDED NOTES 3,4  
 1 11/94 JPH/GW/JSN NEW WHEELCHAIR RAMP DESIGN A, B  
 NO. DATE BY CHKD. APPR. REVISION

APPROVED: COUNTY ENGINEER DATE: 1/23/10

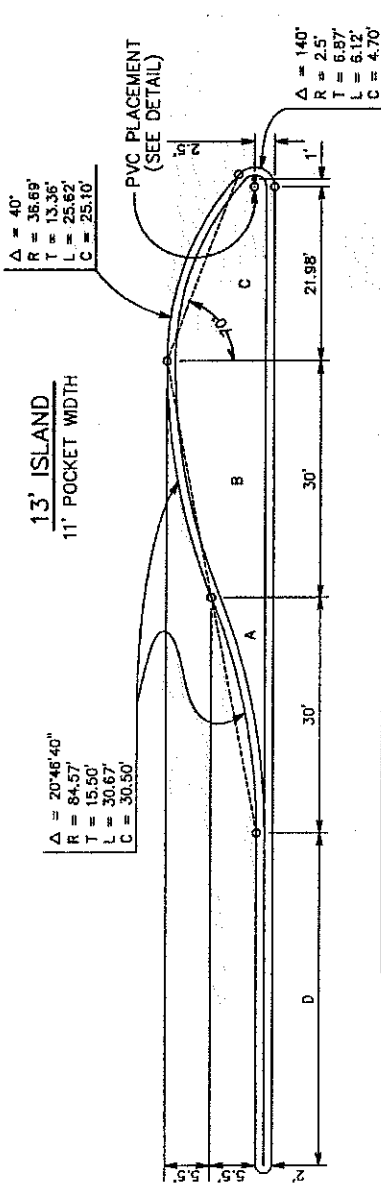
SPOKANE COUNTY DEPARTMENT OF PUBLIC WORKS SPOKANE, WA. 99280 (509) 477-3600

STANDARD CURB RAMP

SHEET A-5

PL3134P 01-25103

**13' ISLAND**  
11' POCKET WIDTH



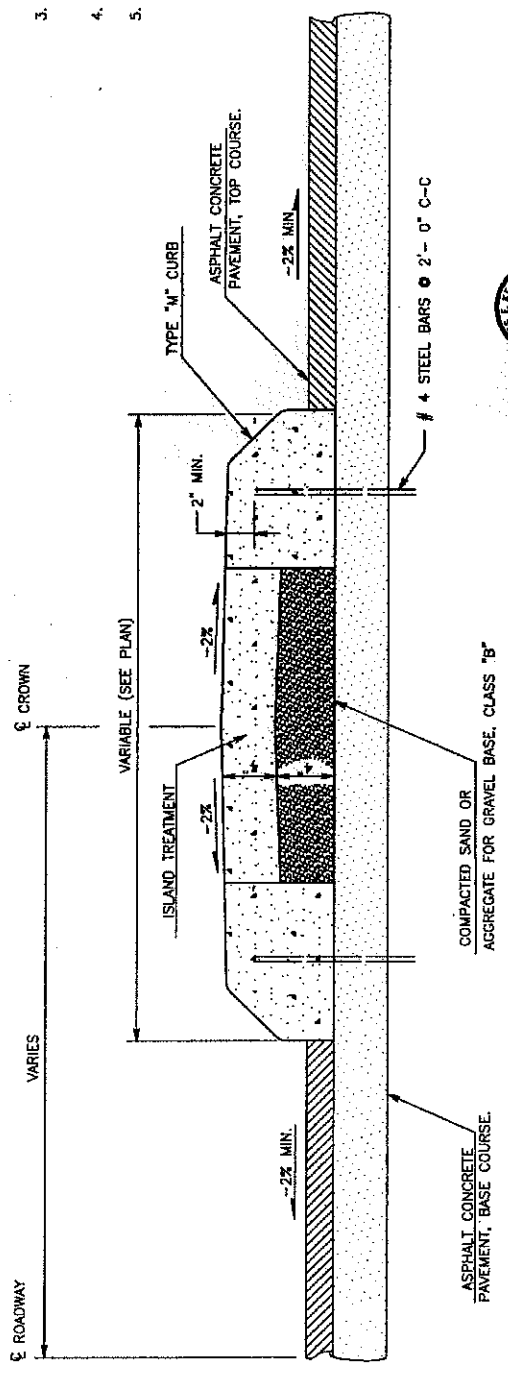
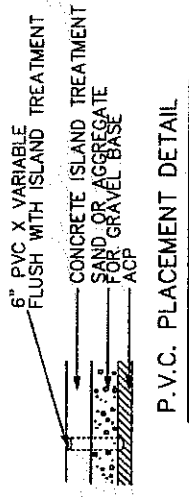
$\Delta = 40'$   
R = 36.69'  
T = 13.36'  
L = 25.62'  
C = 25.10'

$\Delta = 20'46''40''$   
R = 84.57'  
T = 15.50'  
L = 30.67'  
C = 30.50'

| AREA TABLE       | A      | B      | C      | TOTAL  |
|------------------|--------|--------|--------|--------|
| TOTAL AREA       | 114.27 | 335.74 | 244.73 | 694.74 |
| CURB AREA        | 58.71  | 62.63  | 52.14  | 173.48 |
| TREATMENT AREA   | 55.56  | 273.11 | 192.59 | 521.26 |
| CURB(OUTER EDGE) | 60.67  | 60.67  | 53.72  | 175.06 |

**GENERAL NOTES**

1. CONSTRUCTION OF ISLAND TREATMENT SHALL CONFORM TO SECTION B-04 & 8-14 OF THE STANDARD SPECIFICATIONS
2. EXPOSED CURB SURFACES SHALL BE STEEL TROWELLED TO PROVIDE A DENSE, SMOOTH, REFLECTIVE FINISH. THE CONCRETE SLAB SHALL HAVE A BROOMED FINISH.
3. ISLAND NOSSES SHALL BE DOWELED TO THE PAVEMENT IN AT LEAST TWO PLACES.
4. "D" SHALL BE SHOWN ON CONST. PLANS.
5. DEVIATION FROM THE STANDARD ISLAND DIMENSIONS MUST BE APPROVED BY THE TRAFFIC ENGINEER.



STANDARD  
TRAFFIC ISLAND

APPROVED  
COUNTY ENGINEER  
DATE: 1/15/93

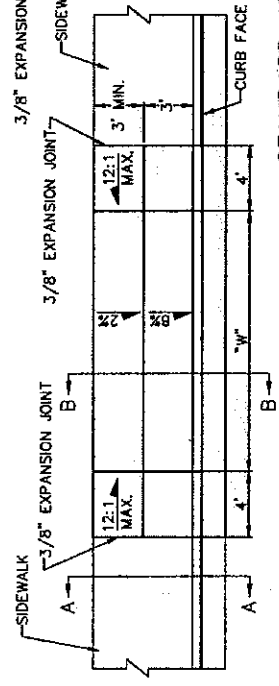
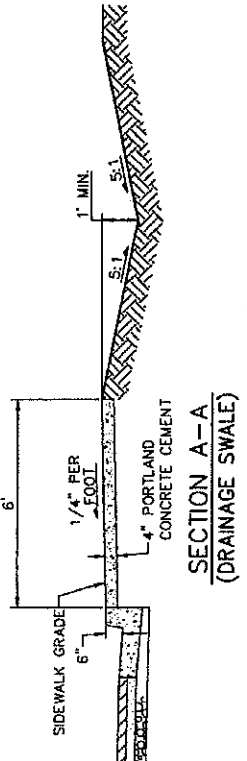
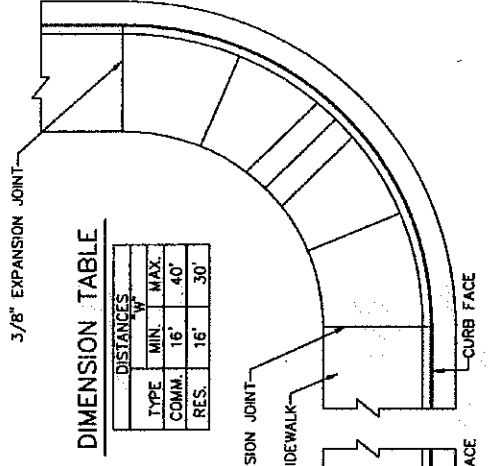
SPokane County  
DEPARTMENT OF PUBLIC WORKS  
Spokane, WA 99260 (509) 477-3600

2 3/93 BHEUG JSH AMENDED NOTE 1 & PVC PLACEMENT  
1 3/98 CPKGM JSH AMENDED NOTE 1  
NO. DATE BY: TKD/TAPP

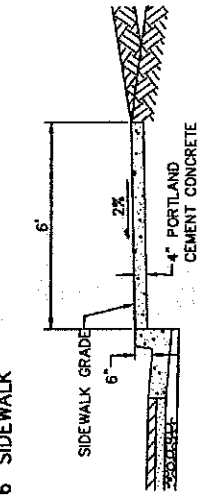
STANDARD  
TRAFFIC ISLAND  
SHEET  
A-6  
POST DATE 9/15/93

# ▲ GENERAL NOTES

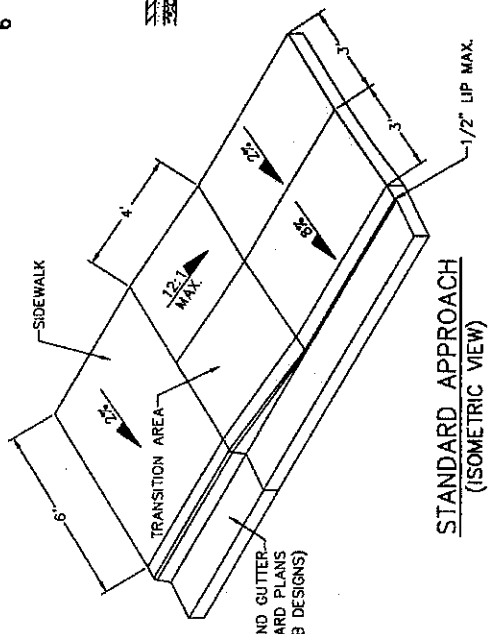
1. EXPANSION JOINT MATERIAL SHALL BE PLACED IN THE CENTER OF ALL DRIVEWAY APPROACHES OVER 20' IN WIDTH.
2. EXPANSION JOINT REQUIRED IF POUR INCLUDES ADDITIONAL DRIVEWAY AREA.
3. CONCRETE FOR DRIVEWAYS SHALL BE CLASS 3000 AIR ENTRAINED.
4. ALL EXTERNAL EDGES TO BE TROWELLED WITH 1/4" RADIUS EDGER.
5. SIDEWALK TO BE SCORED AT 3/8" EXPANSION JOINT TO BE INSTALLED EACH SIDE OF A CURB RETURN AND AT LOCATIONS WHERE SIDEWALK INTERSECTS OTHER SIDEWALKS, DRIVEWAYS AND CURBS.
6. EXPANSION JOINT SHALL BE PLACED TO ENSURE COMPLETE SEPARATION OF CONCRETE.
7. THE COUNTY ENGINEER MAY REQUIRE A WIDER SIDEWALK THAN MINIMUM, WHERE PEDESTRIAN TRAFFIC VOLUMES INDICATE IT IS WARRANTED.
8. SEE SHEET A--5. (CURB RAMPS)
9. CEMENT CONCRETE APPROACHES SHALL BE CONSTRUCTED AT ALL CURB DROP LOCATIONS TO INSURE STORMWATER FLOW ALONG GUTTER LINE REGARDLESS OF SIDEWALK CONSTRUCTION.
10. 95% COMPACTION UNDER APPROACHES  
92% COMPACTION UNDER SIDEWALKS



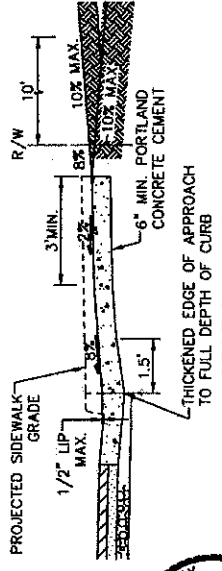
## STANDARD APPROACH 6' SIDEWALK



## SECTION A-A



## STANDARD APPROACH (ISOMETRIC VIEW)

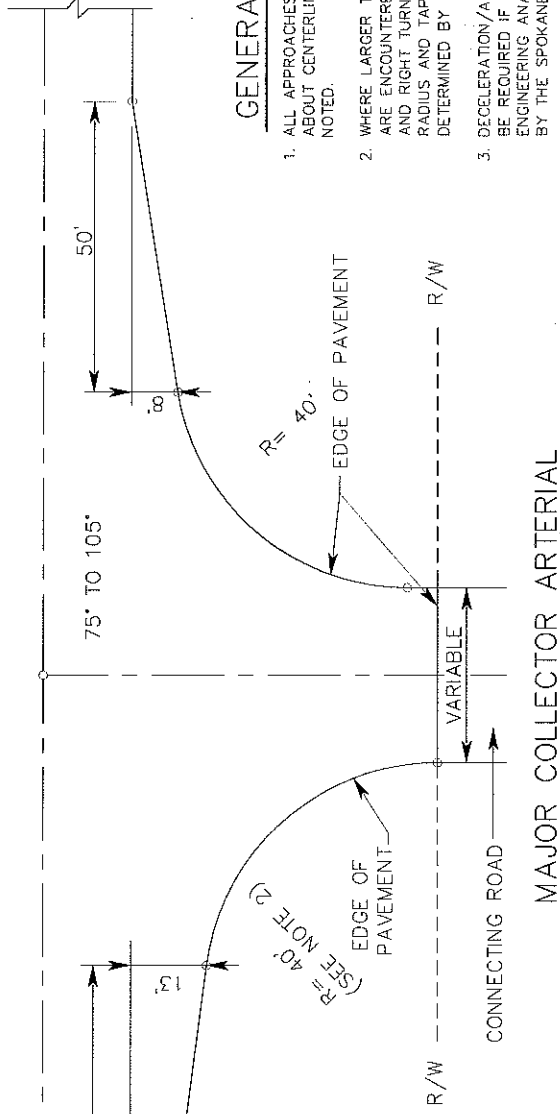


## SECTION B-B



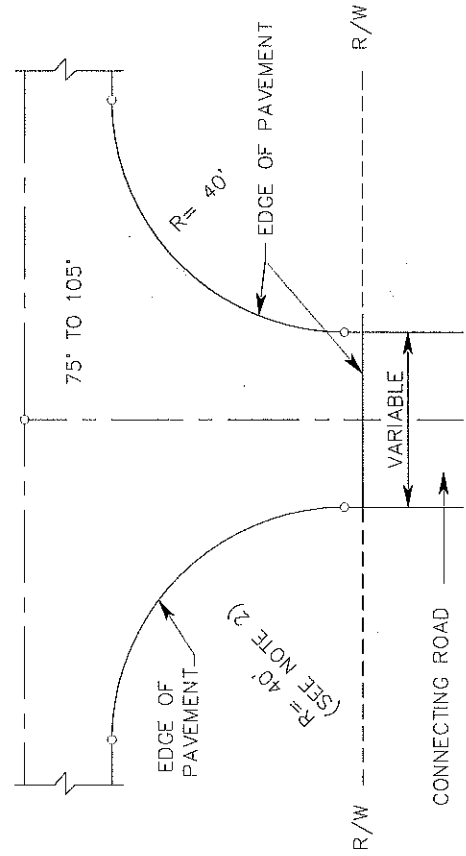
NO SCALE

|     |      |     |                                    |
|-----|------|-----|------------------------------------|
| 1   | 3/03 | ERK | REVISED TO ADA STANDARD            |
| 2   | 1/02 | ERK | NEW LIST OF AMENDED NOTES 5, 7 & 8 |
| 3   | 1/01 | CE  | AMENDED LIST                       |
| 4   | 1/00 | CE  | REVISED SECTION B-B / NOTES 7 & 8  |
| 5   | 1/78 | ERK | REVISED SECTION B-B / NOTES 7 & 8  |
| 6   | 1/78 | ERK | REVISED SECTION B-B / NOTES 7 & 8  |
| 7   | 1/78 | ERK | REVISED SECTION B-B / NOTES 7 & 8  |
| 8   | 1/78 | ERK | REVISED SECTION B-B / NOTES 7 & 8  |
| 9   | 1/78 | ERK | REVISED SECTION B-B / NOTES 7 & 8  |
| 10  | 1/78 | ERK | REVISED SECTION B-B / NOTES 7 & 8  |
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| 12  | 1/78 | ERK | REVISED SECTION B-B / NOTES 7 & 8  |
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| 99  | 1/78 | ERK | REVISED SECTION B-B / NOTES 7 & 8  |
| 100 | 1/78 | ERK | REVISED SECTION B-B / NOTES 7 & 8  |



**GENERAL NOTES**

1. ALL APPROACHES ARE SYMMETRICAL ABOUT CENTERLINE UNLESS OTHERWISE NOTED.
2. WHERE LARGER TRUCK TURNING MOVEMENTS ARE ENCOUNTERED LARGER RETURN RADII AND RIGHT TURN TAPERS MAY BE REQUIRED. RADIUS AND TAPERS SHALL BE DETERMINED BY THE COUNTY ENGINEER.
3. DECELERATION/ACCELERATION LANES MAY BE REQUIRED IF DETERMINED BY ENGINEERING ANALYSIS OR REQUIRED BY THE SPOKANE COUNTY ENGINEER.



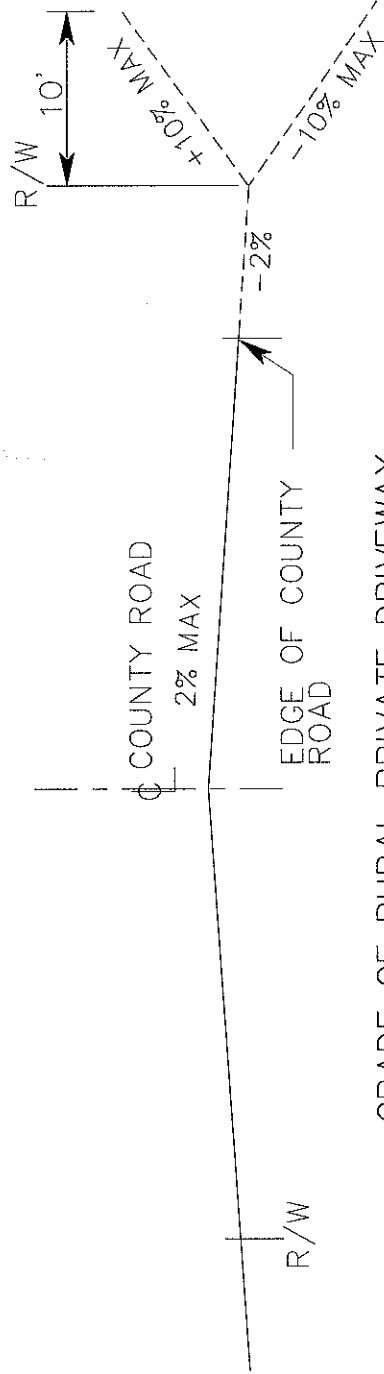
**MINOR COLLECTOR & ACCESS ROADS**



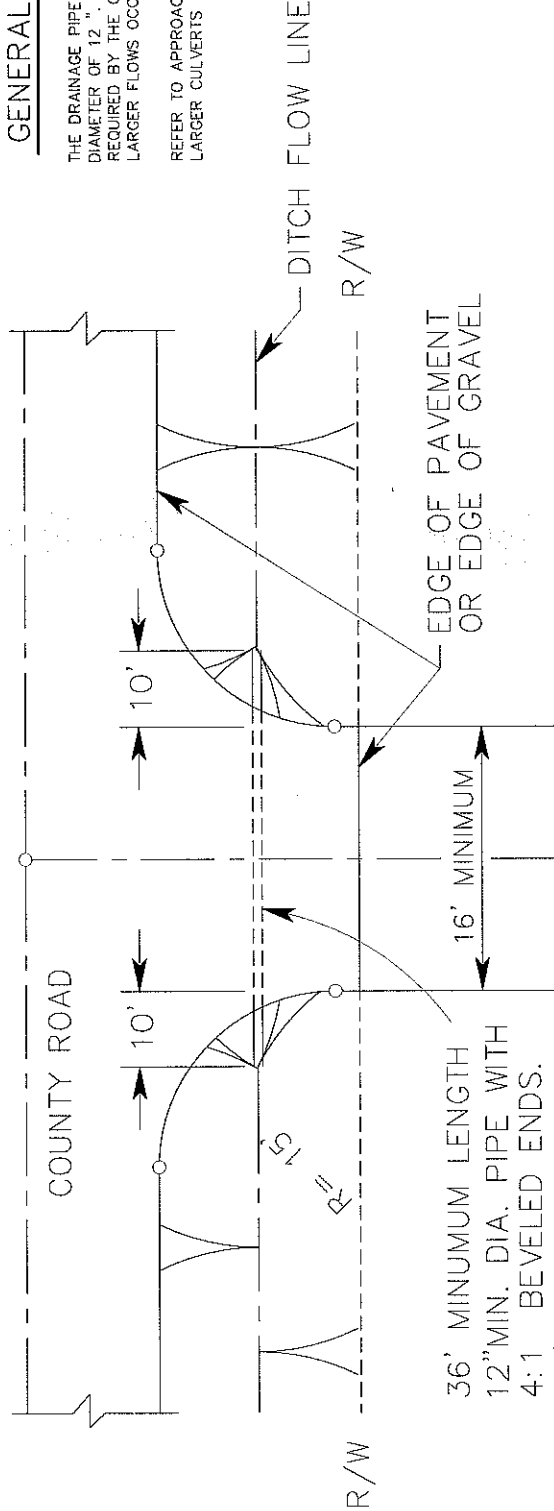
APPROVED: COUNTY ENGINEER DATE: 1/28/10

SPOKANE COUNTY DEPARTMENT OF PUBLIC WORKS SPOKANE, WA 99205 455-3600

| NO. | DATE     | BY  | CHKD. | APPR. | REVISION                        |
|-----|----------|-----|-------|-------|---------------------------------|
| 2   | 11/08/07 | JSH | JSH   |       | ADDED NOTE 3                    |
| 1   | 3/28/07  | JSH | JSH   |       | REMOVED RURAL DRIVEWAY AND NOTE |



GRADE OF RURAL PRIVATE DRIVEWAY



36' MINIMUM LENGTH  
 12" MIN. DIA. PIPE WITH  
 4:1 BEVELED ENDS.  
 1.0' MIN. COVER.  
 SEE NOTE

GENERAL NOTES

THE DRAINAGE PIPE SHALL HAVE A MINIMUM DIAMETER OF 12". LARGER PIPES MAY BE REQUIRED BY THE COUNTY ENGINEER WHERE LARGER FLOWS OCCUR.

REFER TO APPROACH SECTION REGARDING LARGER CULVERTS

RURAL PRIVATE DRIVEWAY



APPROVED: COUNTY ENGINEER DATE: 1/28/08

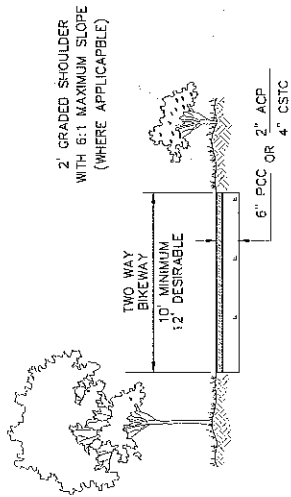
SPOKANE COUNTY DEPARTMENT OF PUBLIC WORKS SPOKANE, WA. 99206 (509) 477-3600

| NO. | DATE     | BY  | CHKD. | APPR. | REVISION       |
|-----|----------|-----|-------|-------|----------------|
| 2   | 11/09/07 | BJC |       |       | GENERAL NOTES  |
| 1   | 10/02/07 | BJC |       |       | REVISED SLOPES |

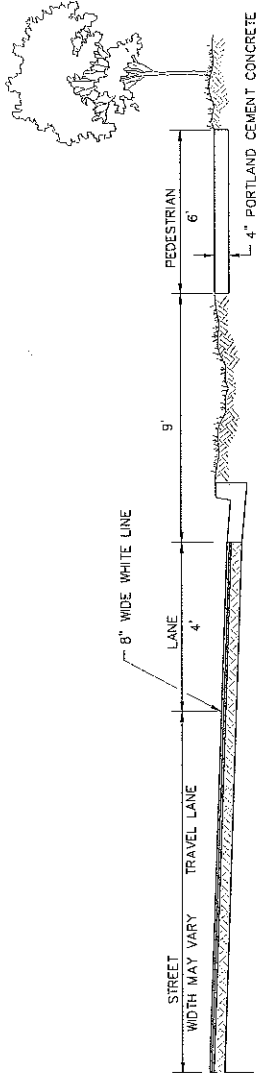
STANDARD RURAL DRIVEWAY APPROACHES

SHEET A-8a

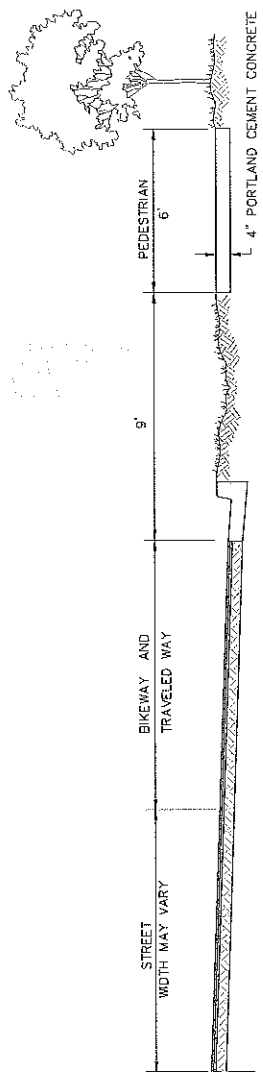
PLT DATE: 01/20/08



SHARED USE PATHWAY



BIKE LANE



BIKE ROUTE

NOTE: SIGNING FOR BIKEWAYS  
SHALL BE CONSISTENT WITH  
THE MANUAL OF UNIFORM  
TRAFFIC CONTROL DEVICES



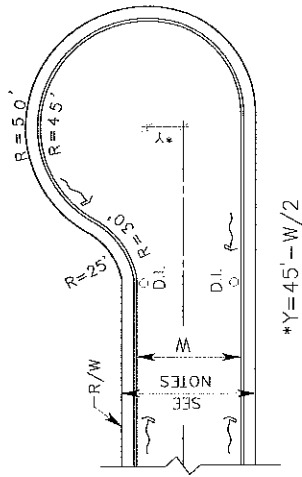
APPROVED  
COUNTY ENGINEER  
DATE: 1/28/10

SPOKANE COUNTY  
DEPARTMENT OF PUBLIC WORKS  
SPOKANE, WA. 99280 456-3600

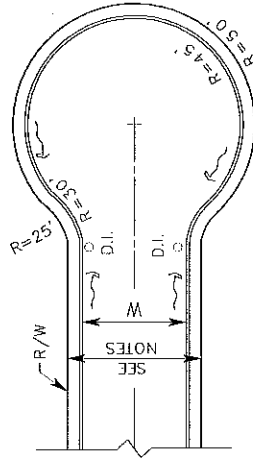
NOTES FOR WIDTH, GRADING, STRIPPING  
NOTE FOR SIGNING  
SEPARATED PATHS  
REVISION

|                        |          |     |      |     |
|------------------------|----------|-----|------|-----|
| 3                      | 11/09/09 | PF  | SDS  | USH |
| 2                      | 2/88     | CP  | SDS  | USH |
| 1                      | 1/95     | JFP | G.W. | CSN |
| NO. DATE BY CKD: APPR. |          |     |      |     |

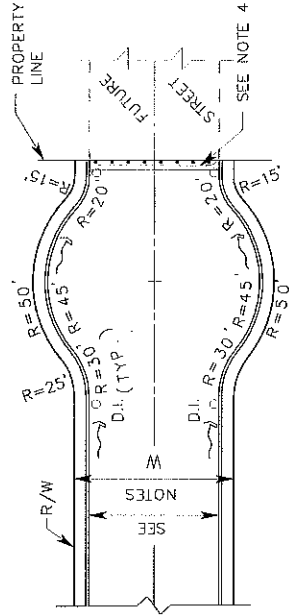
STANDARD  
BIKEWAYS & PEDESTRIAN PATHS



OFFSET CUL-DE-SAC



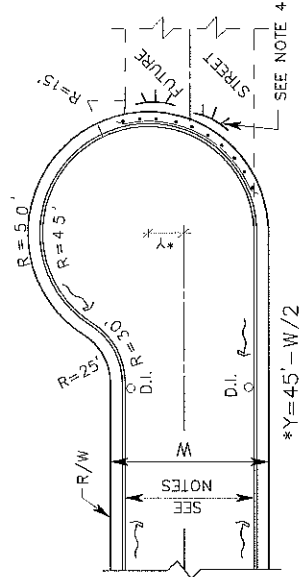
FULL CUL-DE-SAC



TEMPORARY FULL CUL-DE-SAC

GENERAL NOTES

1. THE DRAINAGE INLETS (D.I.) SHOWN ON THIS SHEET ARE REQUIRED ONLY WHEN THE STREET SLOPES TOWARD THE CUL-DE-SAC.
2. THE WIDTH OF RIGHT-OF-WAY AND THE CURB TO CURB STREET DIMENSIONS SHALL BE SPECIFIED BY THE COUNTY ENGINEERS OFFICE.
3. MINIMUM CURB GRADES ON CUL-DE-SACS SHALL BE 1%.
4. TEMPORARY CUL-DE-SAC WILL BE MARKED BY INSTALLATION OF PERMANENTLY INSTALLED TYPE 3 BARRICADES AND TWO "END OF ROADWAY MARKERS". SIGNS OM4-1 IN THE PATH OF THE APPROACHING TRAFFIC LANE TO THE END OF THE CUL-DE-SAC.



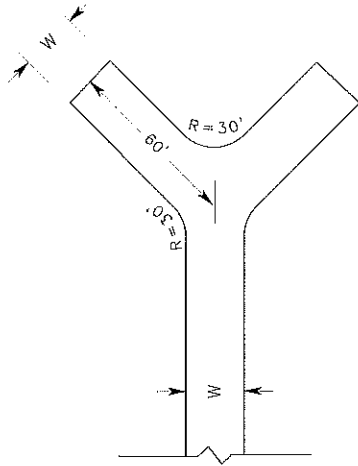
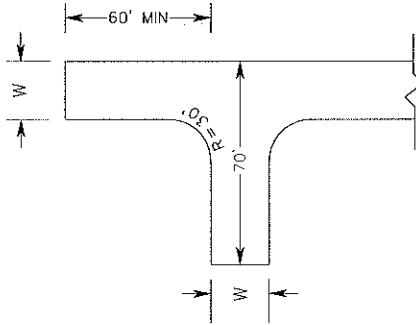
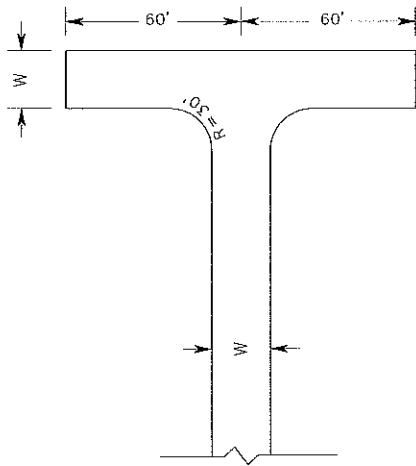
TEMPORARY OFFSET CUL-DE-SAC



APPROVED  
COUNTY ENGINEER  
DATE: 1/23/10

SPOKANE COUNTY  
DEPARTMENT OF PUBLIC WORKS  
SPOKANE, WA 99260 456-3500

|     |          |    |       |       |                 |
|-----|----------|----|-------|-------|-----------------|
| NO. | DATE     | BY | CHKD. | APPR. | REVISION        |
| 2   | 11/09    | PF | JSH   | WAL   | REVISED NOTE 4. |
| 1   | 12/17/07 | CP | JSH   | WAL   | DRAWING TITLE   |

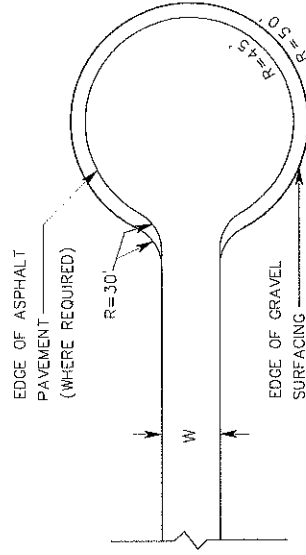


**ALTERNATE TURN-AROUNDS**

W = WIDTH OF ROADWAY BEING TERMINATED

**NOTE**

ALTERNATE TURN-AROUNDS MAY BE USED WHEN THE TERRAIN PRECLUDES THE USE OF STANDARD CUL-DE-SAC



**STANDARD CUL-DE-SAC**



SPOKANE COUNTY  
DEPARTMENT OF PUBLIC WORKS  
SPOKANE, WA. 99206 456-3500

APPROVED  
COUNTY ENGINEER  
DATE: 2/28/06

STANDARD  
CUL-DE-SACS-PRIVATE ROADS

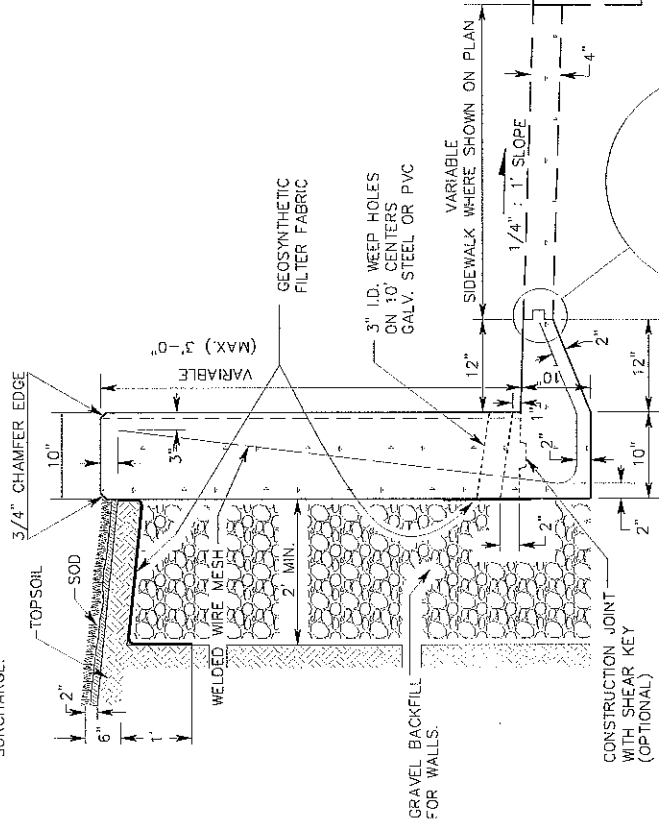
STD. 411-A, 1987  
SHEET  
A-10c

| NO. | DATE     | BY | CRD. | APP'R. | REVISION                 |
|-----|----------|----|------|--------|--------------------------|
| 1   | 11/20/05 | PF |      |        | REVISED CUL-DE-SAC WIDTH |



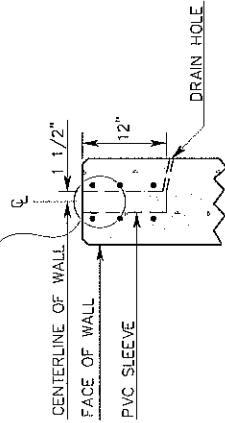
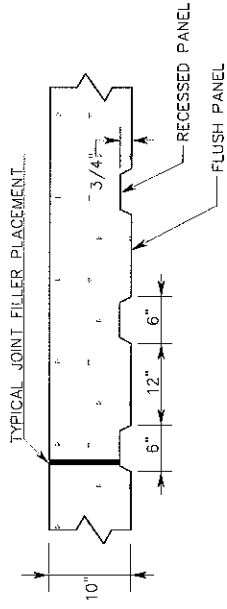
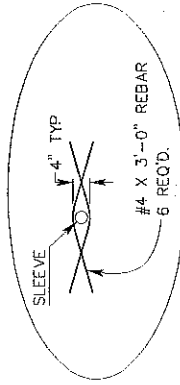
# GENERAL NOTES

1. ALL CONCRETE SHALL BE CLASS 3000.
2. 1/2" PREMOULDED JOINT FILLER IN WALL AT MAXIMUM 25' CENTERS. JOINT SHALL OCCUR AT PANEL EDGE AND CONTINUE TRANSVERSELY THROUGH SIDEWALK.
3. REINFORCING SHALL BE A CURTAIN OF 4"x4" -- W4/W4 WELDED WIRE MESH.
4. CLASS 1 SURFACE TREATMENT ON ALL EXPOSED WALL SURFACES.
5. ALL BACKFILL BEHIND WALL SHALL BE FREE DRAINING GRANULAR MATERIAL.
6. SLEEVES FOR FENCE POSTS SHALL BE CENTERED AS DIRECTED BY THE ENGINEER. WALLS 2'-6" OR TALLER REQUIRE A FENCE OR AS DIRECTED BY THE ENGINEER.
7. THIS WALL IS DESIGNED TO BE USED WITH A LEVEL BACKFILL AND NO SURCHARGE.



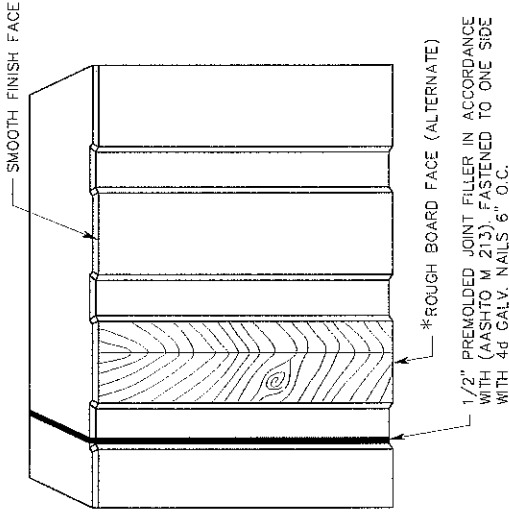
## TYPICAL SECTION

NOTE: THE BLUNT END OF A RETAINING WALL IS NOT ALLOWED WITHIN THE CLEAR ZONE.



3" I.D. X 12" SLEEVE FOR FUTURE FENCE POST PLACEMENT. CONSTRUCT 1/2" DRAIN HOLE AS SHOWN.

SLEEVE FOR FENCE POST ON TOP OF WALL



ALTERNATE FACE TREATMENT TO BE CONSTRUCTED WHERE DESIGNATED IN SPECIAL PROVISIONS.

\* ROUGH BOARD FORM-FINISHED SURFACE OF FLUSH PANEL IS TO SIMULATE THE GRAIN OF ROUGH BOARDS. USE FORM LINER.



APPROVED  
COUNTY ENGINEER  
DATE: 12/3/10

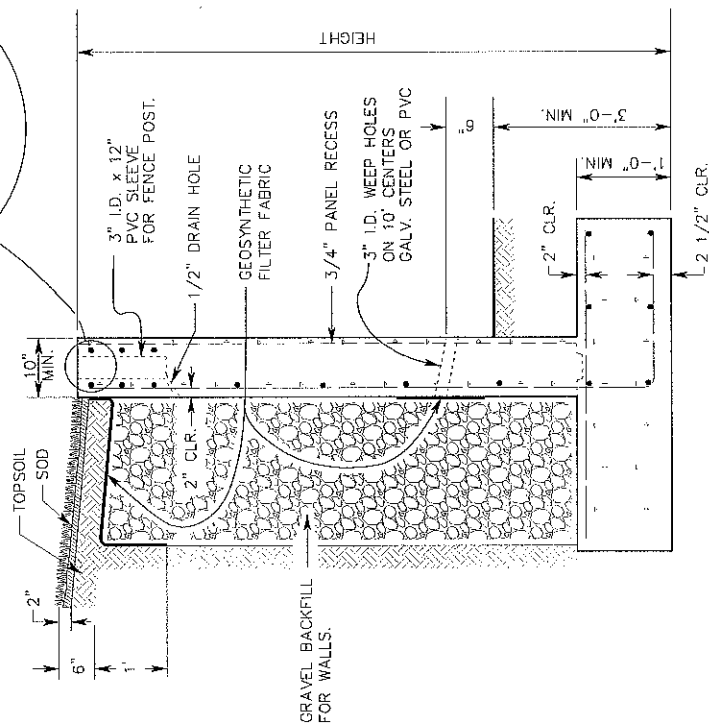
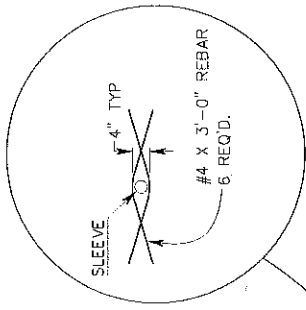
SPOKANE COUNTY  
DEPARTMENT OF PUBLIC WORKS  
SPOKANE, WA. 99260  
(509) 477-3600

|     |             |      |       |  |
|-----|-------------|------|-------|--|
| 3   | 11/7/08/PE  | IBIG | IRK   | ADDED NOTE FOR BLUNT WALL END.         |
| 2   | 10/07/08/PE | BUC  | RK    | NOTE #8 WALLS 2'-6" ETC.               |
| 1   | 8/24/08/JP  | GSN  | RCH   | NOTE #7, FILTER BLANKET & REBAR DETAIL |
| NO. | DATE        | BY   | CHKD. | APPDR.                                 |
|     |             |      |       | REVISION                               |

STANDARD  
SIDEWALK RETAINING WALL

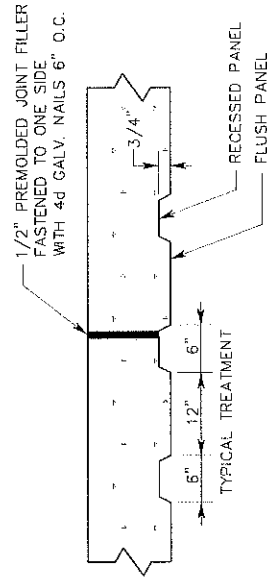
## GENERAL NOTES

1. ALL CONCRETE CLASS 4000.
2. ALL EDGES TO BE 3/4" CHAMFER.
3. CONCRETE THICKNESS, STRUCTURAL DETAILS, SIZE AND NUMBER OF REINFORCEMENT SHALL BE DETERMINED BY ENGINEER.
4. 1/2" PREMOLDED JOINT FILLER IN WALL AT MAXIMUM 25' CENTERS. JOINT SHALL OCCUR AT PANEL EDGE AND CONTINUE TRANSVERSELY THROUGH SIDEWALK.
5. SLEEVES FOR FENCE POSTS SHALL BE CENTERED AS DIRECTED BY ENGINEER. WALLS 2'-6" OR TALLER REQUIRE A FENCE OR AS DIRECTED BY ENGINEER.



## TYPICAL SECTION

NOTE: THE BLUNT END OF A RETAINING WALL IS NOT ALLOWED WITHIN THE CLEAR ZONE.



## FACE TREATMENT ON WALL

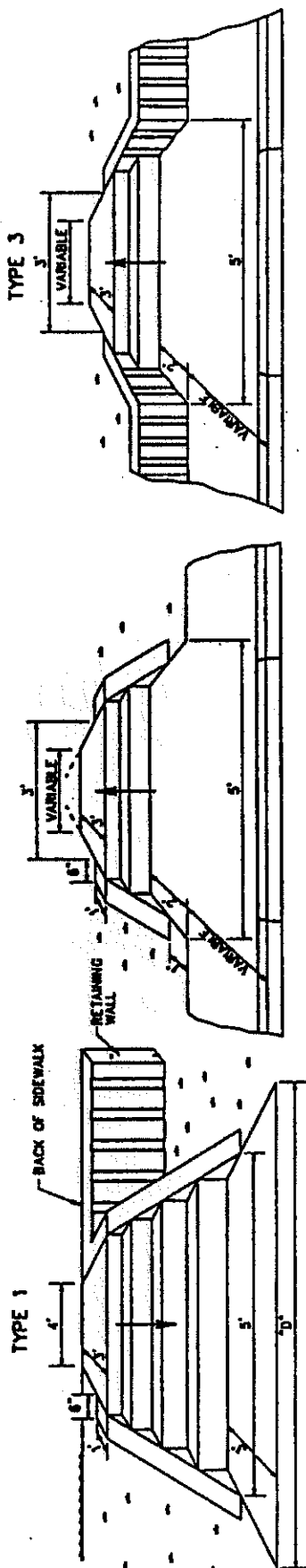


APPROVED: *[Signature]*  
 COUNTY: *[Blank]*  
 DATE: *12/20/10*

SPOKANE COUNTY  
 DEPARTMENT OF PUBLIC WORKS  
 SPOKANE, WA. 99260  
 (509) 477-3600

| NO. | DATE  | BY | CHKD. | APPR. | REVISION                              |
|-----|-------|----|-------|-------|---------------------------------------|
| 3   | 11/09 | PF | BJG   |       | ADDED NOTE FOR BLUNT WALL END         |
| 2   | 10/02 | FP | BJG   |       | ADDED NOTE #5                         |
| 1   | 6/04  | JB | GSN   | RCH   | FILTER BALNKET & REBAR BENDING DETAIL |

STANDARD  
 RETAINING WALL



ENTRANCE STEPS UP WITH RETAINING WALL

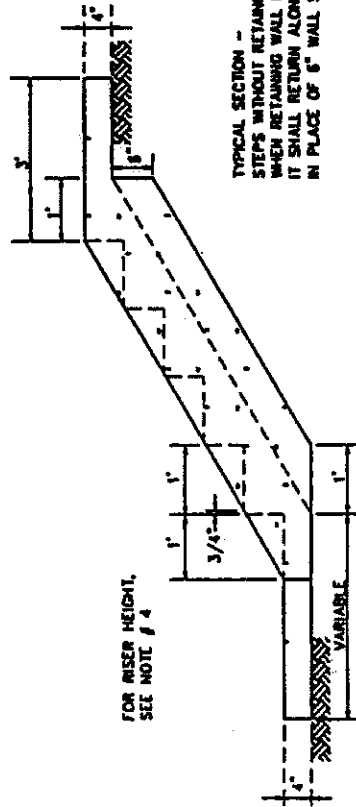
ENTRANCE STEPS UP

ENTRANCE STEPS DOWN WITH OR WITHOUT RETAINING WALL

NOTE : WIDTH "D" THIS IS VARIABLE TO MEET THE WIDTH OF THE ENTRANCE WALK TO BE JOINED. IF NO WALK EXISTS THIS WIDTH IS TO BE 5 FEET.

GENERAL NOTES

1. PORTLAND CEMENT CONCRETE SHALL BE CLASS 3000 CONFORMING TO THE STANDARD SPECIFICATIONS.
2. ALL EXPOSED EDGES TO BE FINISHED WITH 3/4" RADIUS.
3. TREADS SHALL PITCH DOWN AND OUT 1/4" AND SHALL NOT TRAP WATER.
4. RISERS SHALL HAVE A MINIMUM 5" AND MAXIMUM 8" HEIGHT AND ALL SHALL BE EQUAL AT ANY ONE LOCATION.
5. NUMBER OF STEPS WILL VARY TO MEET THE GRADE OF PROPERTY BEING SERVED.
6. VARIATIONS IN DIMENSIONS MAY BE MADE ON SITE BY THE ENGINEER TO SATISFY PARTICULAR CONDITIONS.



SPOKANE COUNTY  
DEPARTMENT OF PUBLIC WORKS  
SPOKANE, WA. 99208 486-3800

APPROVED  
COUNTY ENGINEER  
DATE: 11-15-2010

SHEET  
A-13

ENTRANCE STEPS TO ABUTTING PROPERTIES

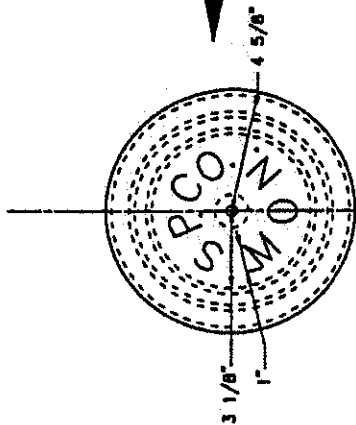
REVISION

NO. DATE BY/CKD/LAPP/R

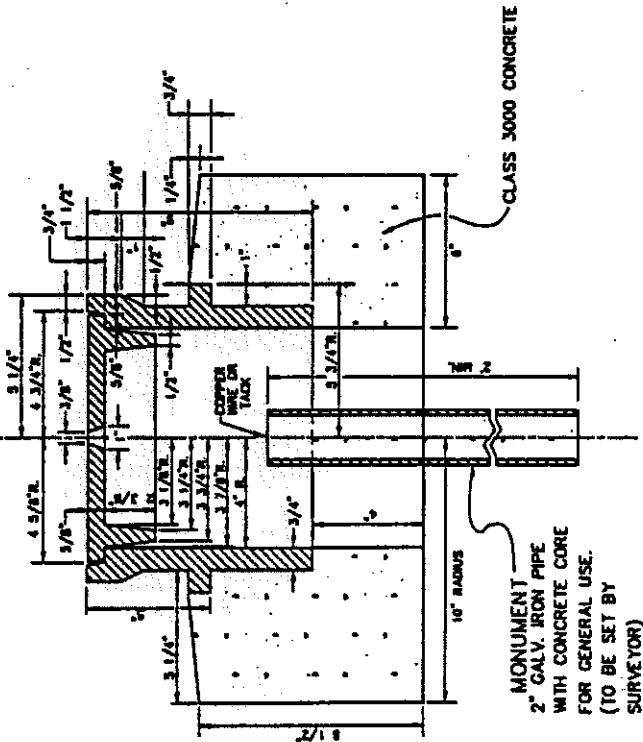
## GENERAL NOTES

1. THE CASTINGS SHALL BE GREY IRON CASTINGS, AASHTO DESIGNATION M-105, CLASS JOB. THE COVER AND SEAT SHALL BE MACHINED SO AS TO HAVE CONTACT AROUND THE ENTIRE CIRCUMFERENCE AND FULL WIDTH OF BEARING SURFACE.
2. WHEN THE MONUMENT CASE AND COVER ARE PLACED IN CEMENT CONCRETE PAVEMENT THE CONCRETE BASE IS NOT NEEDED.
3. A RECORD OF REFERENCES TO SURVEY POINTS SHALL BE SUBMITTED TO THE COUNTY ENGINEERS OFFICE AS SHOWN ON SAMPLE.

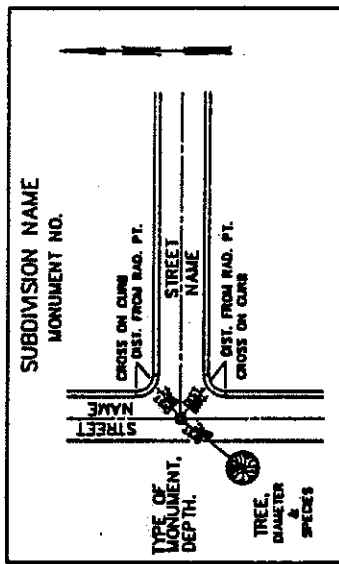
### PLAN VIEW OF COVER



### SECTION OF LETTER



### SECTION



### SAMPLE REFERENCE CARD



APPROVED:  
COUNTY ENGINEER  
DATE: 11-15-93

SPOKANE COUNTY  
DEPARTMENT OF PUBLIC WORKS  
SPOKANE, WA 99208  
438-2600

AMENDED NOTE 1  
REVISION

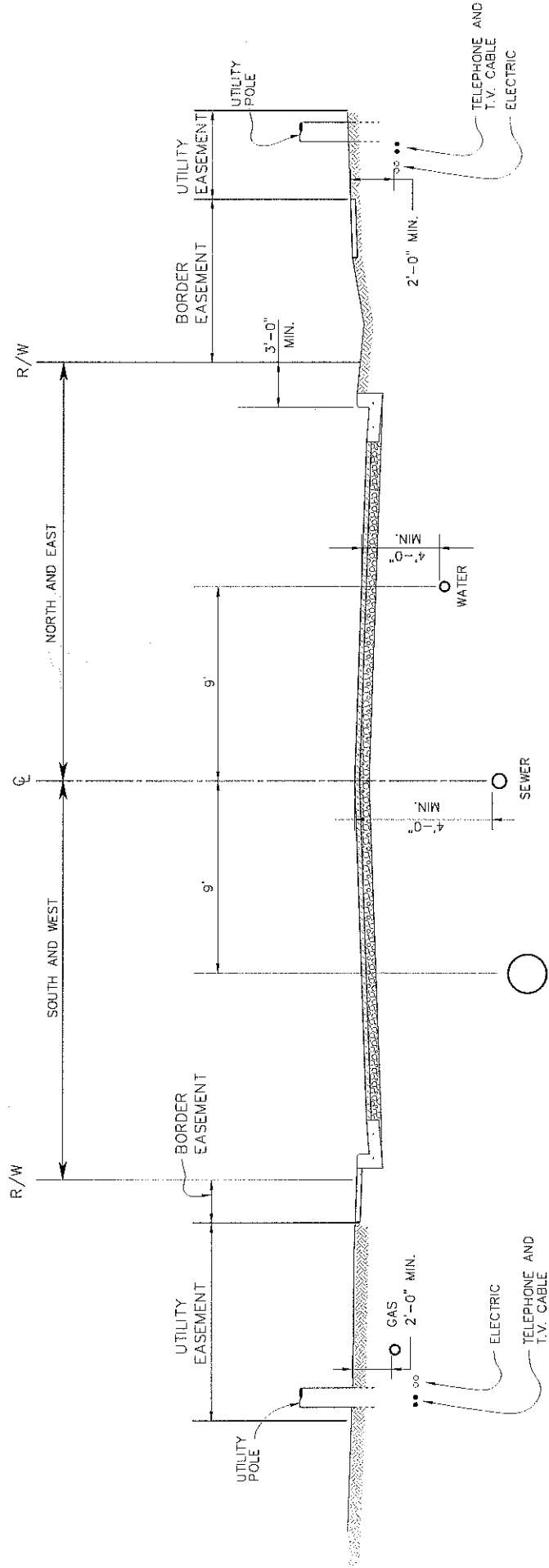
NO. DATE BY (CKD) APPR. JSH

SHEET  
A-14

STANDARD  
MONUMENT CASE & COVER

### GENERAL NOTES

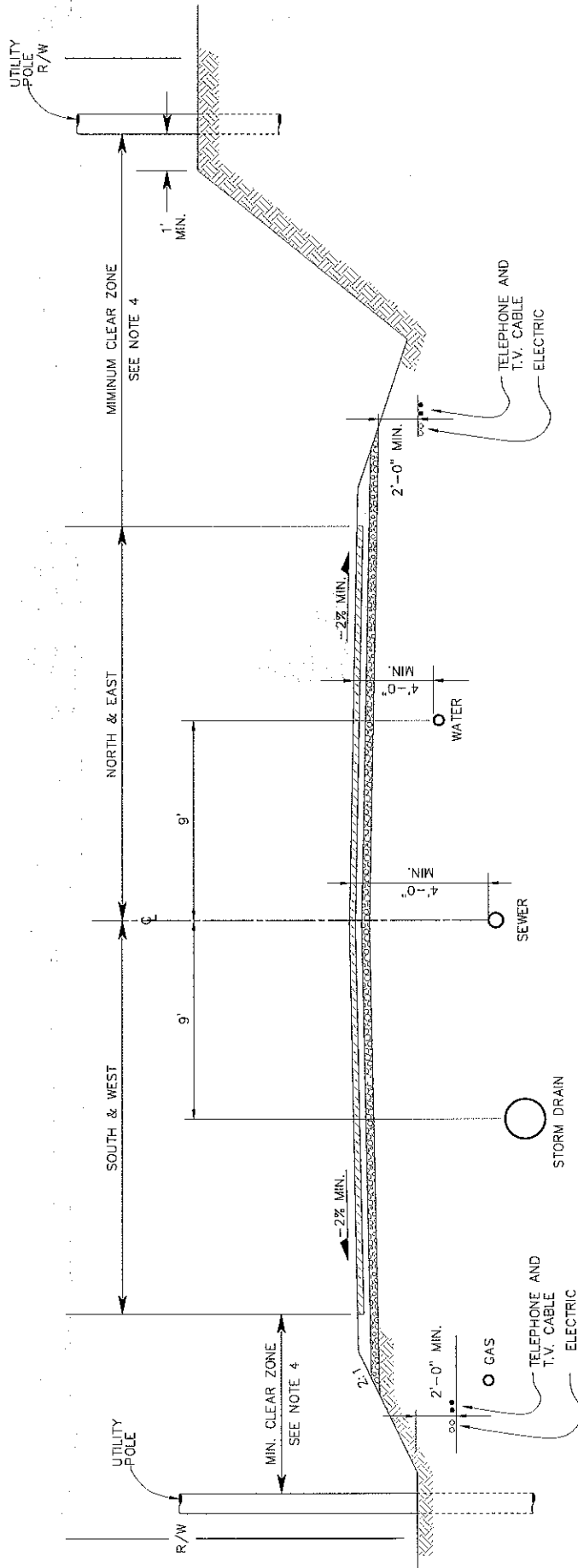
1. THIS PLAN SHOWS NORMAL LOCATIONS FOR ALL UTILITY INSTALLATIONS.
2. LOCATIONS OF EXISTING UTILITIES MUST BE FIELD LOCATED WITH THEIR RESPECTIVE OWNERS BEFORE MAKING NEW CONNECTIONS.
3. TELEPHONE PEDESTAL SHALL BE LOCATED JUST INSIDE R/W LINE.
4. REFER TO ROADSIDE SAFETY SECTION FOR ADDITIONAL INFORMATION.



APPROVED  
 COUNTY ENGINEER  
 DATE: 12/10

SPOKANE COUNTY  
 DEPARTMENT OF PUBLIC WORKS  
 SPOKANE, WA. 99260 477-3600

|     |       |     |       |       |  |
|-----|-------|-----|-------|-------|--|
| NO. | DATE  | BY  | CHKD. | APPR. | REVISION                                 |
| 3   | 11/09 | IPF | JSH   |       | MOVED UTILITIES FROM R/W                 |
| 2   | 12/99 | CP  | JSH   | WAJ   | CHANGED TITLE TO CURBED ROAD             |
| 1   | 5/94  | JB  | JSH   | TRCH  | R/W & UTILITY POLE LOCATION @ SWALE SIDE |



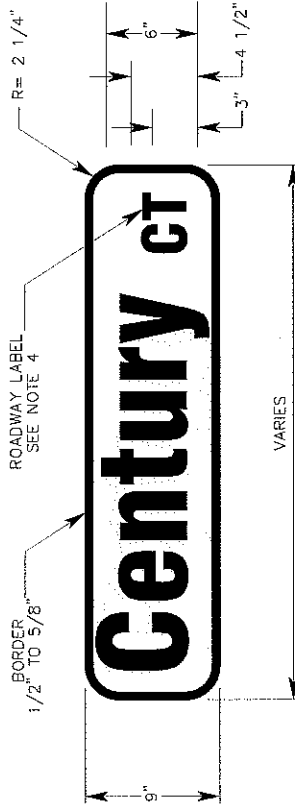
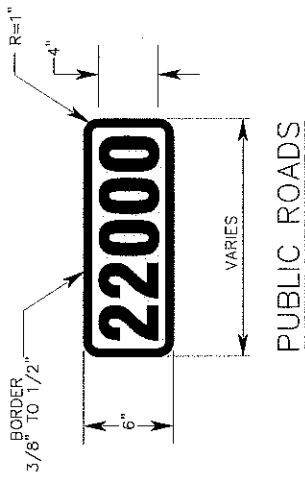
### GENERAL NOTES

1. THIS PLAN SHOWS NORMAL LOCATIONS FOR ALL UTILITY INSTALLATIONS.
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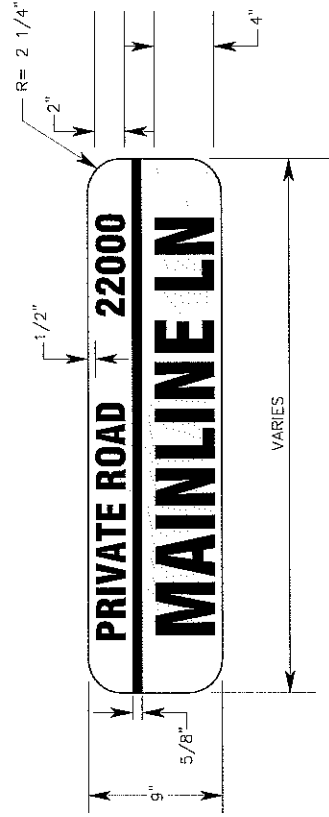
|  |       |         |             |              |          |
|--|-------|---------|-------------|--------------|----------|
| NO. DATE   | BY    | CHECKED | APPR.       |              |          |
| 1  | 11/09 | JPF     | [Signature] | ADDED NOTE 4 | REVISION |
| SPOKANE COUNTY<br>DEPARTMENT OF PUBLIC WORKS<br>SPOKANE, WA 99260 455-3600 |       |         |             |              |          |
| APPROVED: _____<br>COUNTY ENGINEER<br>DATE: 11/23/70                       |       |         |             |              |          |
| STANDARD _____<br>UTILITY LOCATIONS - SHOULDERED ROAD                      |       |         |             |              |          |
| SHEET<br>A-150   |       |         |             |              |          |

## GENERAL NOTES

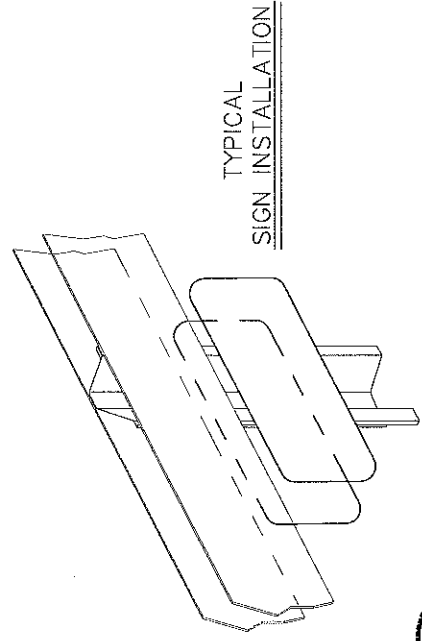
- SIGNS SHALL MEET SPECIFICATIONS FOR FLAT PLATE ALUMINUM, 0.08" THICK, ALODINE 1200 OR EQUAL.
- THE SIGN SURFACE SHALL BE WHITE LETTERS/DIGITS AND WHITE BORDER (NON-PRIVATE ROADS) ON A GREEN BACKGROUND. WHITE LETTERS/DIGITS, BORDER AND GREEN BACKGROUND SHALL MEET OR EXCEED ASTM D4956 TYPE III (HIGH INTENSITY) RETROREFLECTIVE SHEETING OR GREEN TRANSPARENT ELECTRONIC CUTTABLE (EC) FILM REVERSE WEEDED ON WHITE TYPE III (HIGH INTENSITY) RETROREFLECTIVE SHEETING BACKGROUND.
- LETTERS SHALL BE A BLOCK TYPE FONT.
- THE ROADWAY LABEL MAY BE OMITTED FOR "STREET", "ROAD", AND "AVENUE". ALL OTHER ROADWAYS SHALL INCLUDE THE ABBREVIATED LABEL (I.E. - COURT - CT, DRIVE - DR. ETC.) ROADWAY LABEL SHALL BE UPPER CASE
- SIGN INSTALLATION SHALL CONFORM TO THE SIGN INSTALLATION STANDARD PLANS A-16A AND A-16B.



## PUBLIC ROADS



## PRIVATE ROADS

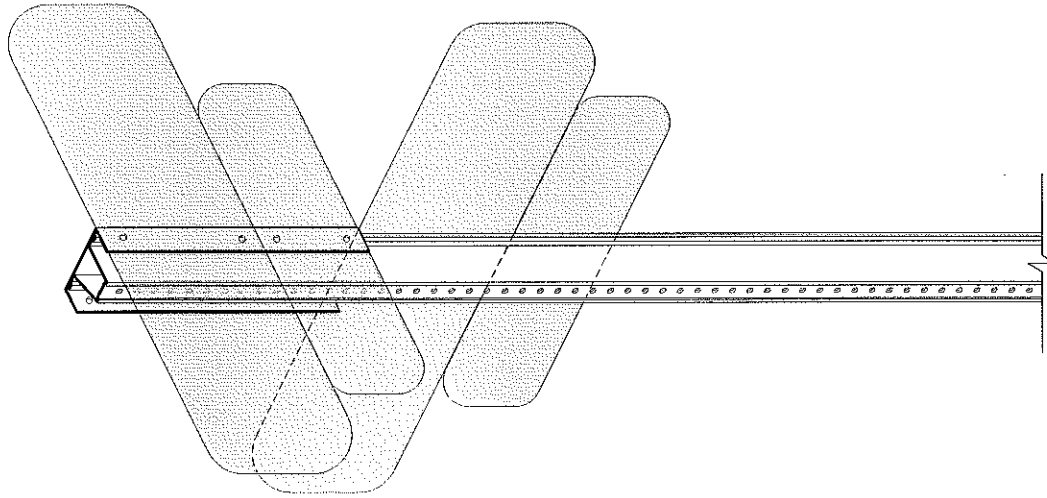


APPROVED:  
COUNTY ENGINEER  
DATE: 1/28/19

SPOKANE COUNTY  
DEPARTMENT OF PUBLIC WORKS  
SPOKANE, WA 99280 477-3600

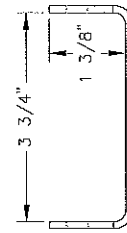
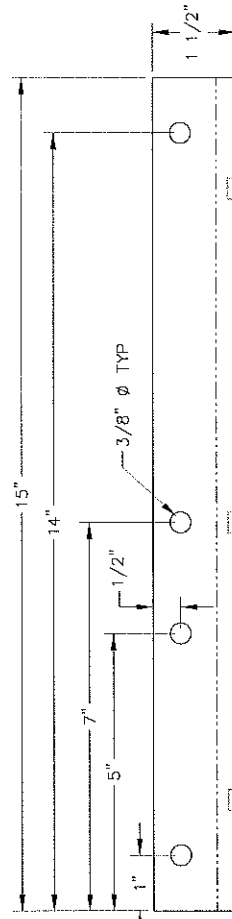
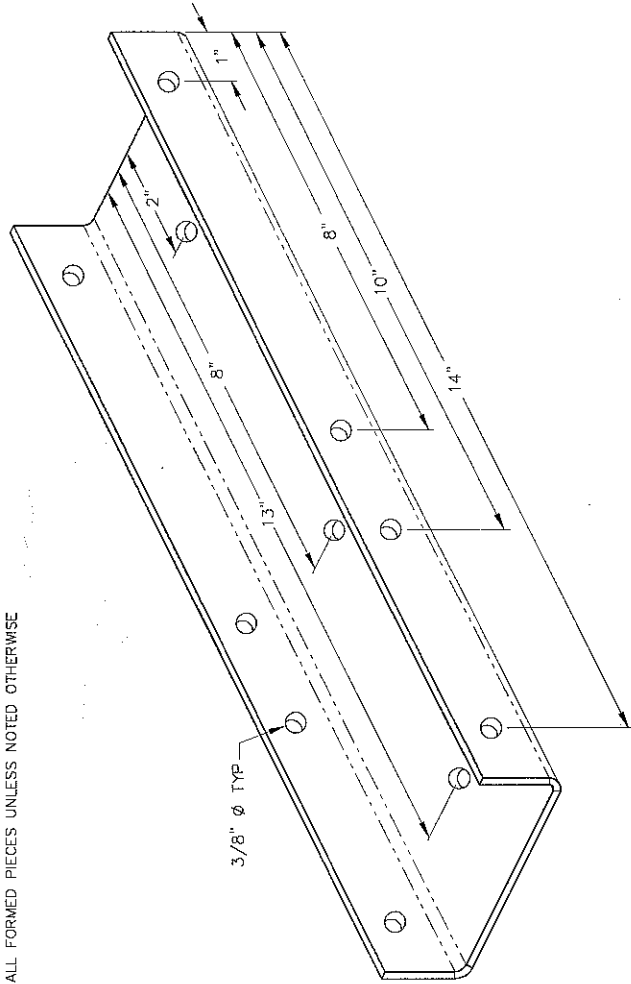
STANDARD  
STREET NAME SIGNS

| NO. | DATE  | BY  | CHKD. | APPR. | REVISION                           |
|-----|-------|-----|-------|-------|------------------------------------|
| 5   | 11/09 | IPF | BC    | BC    | REVISED NOTE 5                     |
| 4   | 2/08  | CW  | BC    | BC    | ADDED BORDER AND TYPE III SHEETING |
| 3   | 3/98  | CP  | KCM   | USH   | REDIGN SIGNS                       |
| 2   | 3/98  | CP  | KCM   | USH   | ELIMINATE RURAL DESIGNATION        |
| 1   | 3/98  | CP  | KCM   | USH   | AMEND NOTES 2,3,4 ADD NOTE 5       |



**GENERAL NOTES**

1. FOR MOUNTING DETAILS SEE STANDARD PLAN A-16B
2. MINIMUM RADII ON ALL FORMED PIECES UNLESS NOTED OTHERWISE



1/8" GALVANIZED  
STEEL WEIGHT-3

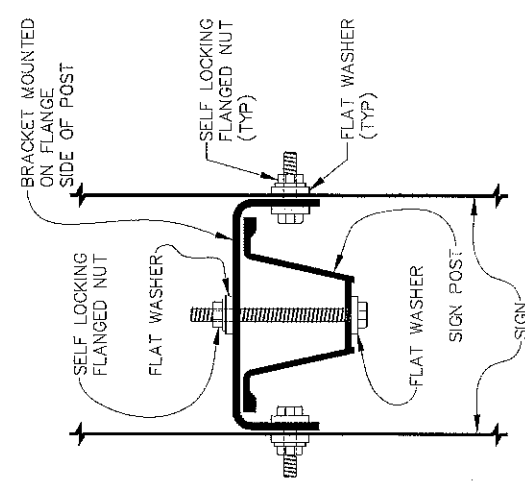
**TYPICAL BRACKET**

**TYPICAL INSTALLATION WITH BRACKET**

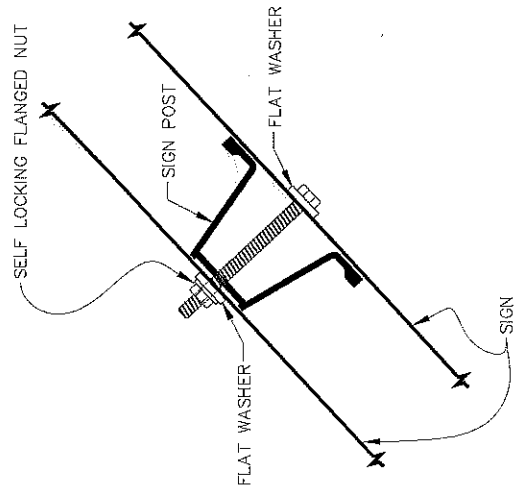


|   |      |    |      |      |          |
|---|------|----|------|------|----------|
| NO.   | DATE | BY | CHKD | APPR | REVISION |
|   |      |    |      |      |          |
| SPOKANE COUNTY<br>DEPARTMENT OF PUBLIC WORKS<br>SPOKANE, WA. 99260 477-3800 |      |    |      |      |          |
| APPROVED: _____<br>COUNTY ENGINEER<br>DATE: 2/27/90 EXPIRES 3/31/90         |      |    |      |      |          |
| STANDARD _____<br>SIGN BRACKET  |      |    |      |      |          |
| STD-A16A.DWG<br>SHEET<br>A-16A  |      |    |      |      |          |

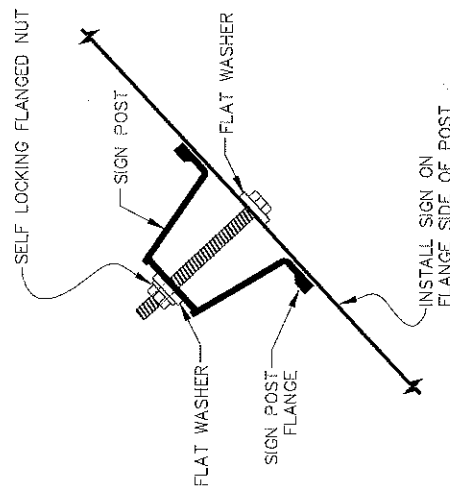




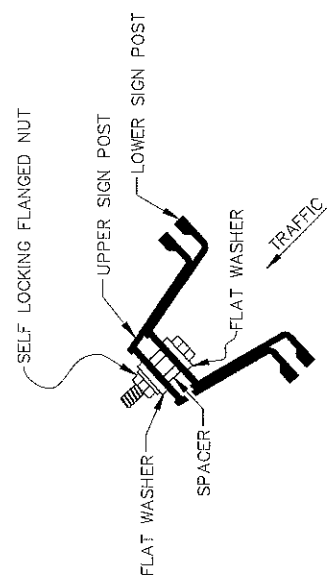
SIGN INSTALLATION WITH SIGN BRACKET



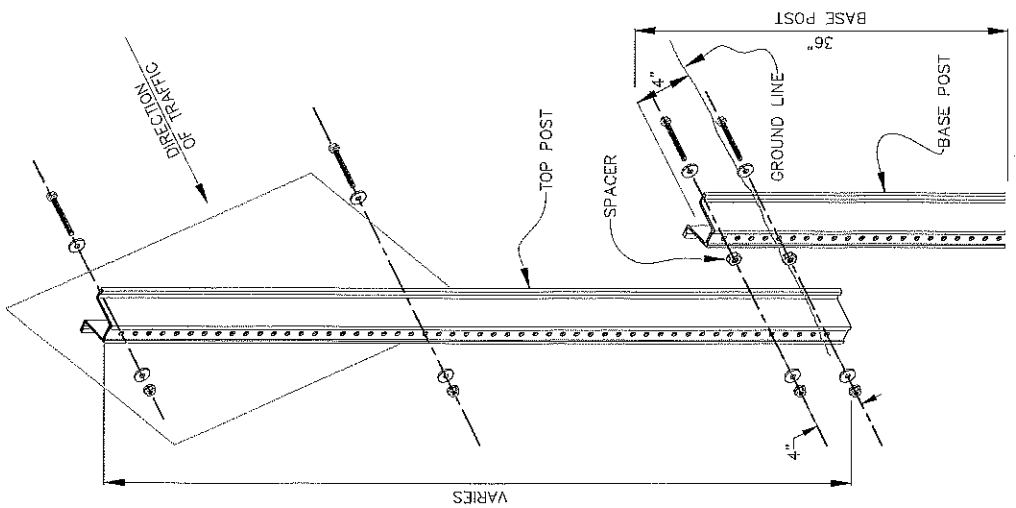
DOUBLE SIGN INSTALLATION ON POST



SINGLE SIGN INSTALLATION ON POST



SIGN POST LAP SPLICE



GENERAL NOTES

1. SIGN TYPE, INSTALLATION AND APPLICATION SHALL CONFORM TO CURRENT EDITION OF M.U.T.C.D.



SPOKANE COUNTY  
DEPARTMENT OF PUBLIC WORKS  
SPOKANE, WA. 99280 477-3600

APPROVED  
COUNTY ENGINEER  
DATE: 3/1/12

STANDARD  
SIGN AND POST INSTALLATION

SHEET  
A-16B

| NO. | DATE | BY | CHKD. | APPR. | REVISION |
|-----|------|----|-------|-------|----------|
|     |      |    |       |       |          |

| STREET CENTERLINE        | LINE WIDTH (mm) | NOTE: THIS WILL BE REQUIRED AT THE TOP OF THE DRAWINGS ONLY WHEN TOWNSHIP OR RANGE LINES DO NOT APPEAR. | LINE WIDTH (mm) |
|--------------------------|-----------------|---|-----------------|
| PROPOSED                 | .6              | NOTE: THIS WILL BE REQUIRED AT THE TOP OF THE DRAWINGS ONLY WHEN TOWNSHIP OR RANGE LINES DO NOT APPEAR. | .8              |
| EXISTING                 | .2              |   |                 |
| R/W BOUNDARY             | .6              | STATE BOUNDARY, COUNTY LINE OR CORPORATE LIMIT, INDICATE AND NAME THE STATE, COUNTY OR CORPORATE UNIT.  | .8              |
| PROPOSED                 | .2              |   |                 |
| EXISTING                 | .4              | TOWNSHIP OR RANGE LINE  | .6              |
| EASEMENT & PERMIT LINE   | .2              | SECTION LINE  | .4              |
| RAILROAD, SINGLE TRACK   | .2              | 1/4 SECTION LINE  | .2              |
| RAILROAD, MULTIPLE TRACK | .2              | 1/16 SECTION LINE   | .2              |



| STREET CENTERLINE        | LINE WIDTH (mm) | NOTE: THIS WILL BE REQUIRED AT THE TOP OF THE DRAWINGS ONLY WHEN TOWNSHIP OR RANGE LINES DO NOT APPEAR. | LINE WIDTH (mm) |
|--------------------------|-----------------|---|-----------------|
| PROPOSED                 | .6              | NOTE: THIS WILL BE REQUIRED AT THE TOP OF THE DRAWINGS ONLY WHEN TOWNSHIP OR RANGE LINES DO NOT APPEAR. | .8              |
| EXISTING                 | .2              |   |                 |
| R/W BOUNDARY             | .6              | STATE BOUNDARY, COUNTY LINE OR CORPORATE LIMIT, INDICATE AND NAME THE STATE, COUNTY OR CORPORATE UNIT.  | .8              |
| PROPOSED                 | .2              |   |                 |
| EXISTING                 | .4              | TOWNSHIP OR RANGE LINE  | .6              |
| EASEMENT & PERMIT LINE   | .2              | SECTION LINE  | .4              |
| RAILROAD, SINGLE TRACK   | .2              | 1/4 SECTION LINE  | .2              |
| RAILROAD, MULTIPLE TRACK | .2              | 1/16 SECTION LINE   | .2              |



|                                |    |   |    |
|--------------------------------|----|---|----|
| SECTION CORNER FOUND, DESCRIBE | .6 | EXISTING DRY WELL, OR SEWER MANHOLE       | .2 |
| 1/4 CORNER NOT FOUND           | .2 | EXISTING INLET OR C.B.                    | .2 |
| CENTER OF SECTION              | .6 | NEW DRY WELL, OR SEWER MANHOLE            | .4 |
| MONUMENT                       | .2 | NEW INLET OR C.B. W/ TYPE 1 FRAME & GRATE | .4 |
| BUILDING                       | .4 | NEW INLET OR C.B. W/ TYPE 2 FRAME & GRATE | .4 |
| BRIDGE                         | .4 | ELECTRICAL VAULT                          | .2 |
|                                |    | TELEPHONE RISER                           | .2 |
|                                |    | WATER METER OR VALVE                      | .2 |
|                                |    | SPRINKLER HEAD                            | .2 |
|                                |    | FIRE HYDRANT                              | .2 |
|                                |    | UTILITY POLE                              | .2 |
|                                |    | UTILITY POLE W/GUY                        | .2 |
|                                |    | UTILITY POLE W/LIGHT                      | .2 |
|                                |    | CONIFEROUS TREES                          | .2 |
|                                |    | DECIDUOUS TREES                           | .2 |
|                                |    | BUSHES, SHRUBS                            | .2 |
|                                |    | WATER, GAS OR OIL TANK                    | .2 |

APPROVED: [Signature]

DATE: 2-28-53

DEPARTMENT OF PUBLIC WORKS  
SPOKANE, WA. 99208

SPokane County

STANDARD SYMBOLS

**LINETYPES**

| LINETYPE                 | DESCRIPTION                   | LINE WIDTH EXIST/PROP | LT NAME *SPEC. LT. | LAYER                                      |
|--------------------------|-------------------------------|-----------------------|--------------------|--|
| <b>CHANNELIZATION</b>    |                               |                       |                    |  |
| ---                      | ROAD-EDGE OF STRIPE (EX)      | 1                     | CONTINUOUS         | TF-CHRD-EXST-LIN                           |
| ---                      | ROAD-EDGE OF STRIPE (PROP)    | 3                     | CONTINUOUS         | TF-CHRD-PROP-LIN                           |
| ---                      | PAINTED LINES/CHANNEL (EX)    | 1                     | CONTINUOUS         | TF-CHAN-EXST-LIN                           |
| ---                      | PAINTED LINES/CHANNEL (PROP)  | 3                     | CONTINUOUS         | TF-CHAN-PROP-LIN                           |
| ---                      | SHOULDER (EX)                 | 1                     | CONTINUOUS         | TF-CHSH-EXST-LIN                           |
| ---                      | SHOULDER (PROP)               | 3                     | CONTINUOUS         | TF-CHSH-PROP-LIN                           |
| <b>SURFACE FEATURES:</b> |                               |                       |                    |  |
| ---                      | ALLEY-EDGE (EX)               | 1                     | XACP               | SF-ALLY-EXST-LIN                           |
| ---                      | ALLEY-EDGE (PROP)             | 3                     | CONTINUOUS         | SF-ALLY-PROP-LIN                           |
| ---                      | BUILDING LINE (EX)            | 3                     | CONTINUOUS         | SF-BLDG-EXST-LIN                           |
| ---                      | BUILDING LINE (PROP)          | 3                     | CONTINUOUS         | SF-BLDG-PROP-LIN                           |
| ---                      | ROADWAY CROWN                 | 2                     | CRN                | SF-CRWN-EXST-LIN                           |
| ---                      | ROADWAY CROWN                 | 3                     | CRN                | SF-CRWN-PROP-LIN                           |
| ---                      | ASPHALT-EDGE (EX)             | 1                     | XACP               | SF-ASPH-EXST-LIN                           |
| ---                      | ASPHALT-EDGE (PROP)           | 2 OR 3                | CONTINUOUS         | SF-ASPH-PROP-LIN                           |
| ---                      | GRAVEL/DIRT-EDGE (EX)         | 1                     | DASH               | SF-GRAV-EXST-LIN                           |
| ---                      | GRAVEL/DIRT-EDGE (PROP)       | 2 OR 3                | CONTINUOUS         | SF-GRAV-PROP-LIN                           |
| ---                      | CONCRETE-EDGE (EX)            | 1                     | DASH               | SF-CONC-EXST-LIN                           |
| ---                      | CONCRETE-EDGE (PROP)          | 2 OR 3                | CONTINUOUS         | SF-CONC-PROP-LIN                           |
| ---                      | CURB/SIDEWALK (EX)            | 1                     | SDASH              | SF-CURB-EXST-LIN                           |
| ---                      | CURB/SIDEWALK (PROP)          | 1 OR 2                | CONTINUOUS         | SF-CURB-PROP-LIN                           |
| ---                      | TRAIL (EX)                    | 1 OR 2                | SDASH              | SF-TRAL-EXST-LIN                           |
| ---                      | CREEK/DITCH CENTERLINE (EX)   | 1                     | DITCH              | SF-222A-EXST-LIN                           |
| ---                      | CREEK/DITCH CENTERLINE (PROP) | 2                     | DITCH              | SF-222A-PROP-LIN                           |
| ---                      | RIVERBANK/ShORELINE           | 3                     | CONTINUOUS         | 222A - USE CRK/DTCH<br>222B - USE RWR/SHDR |
| ---                      | FIELD LINE (EX)               | 1                     | SDASH              | SF-FELD-EXST-LIN                           |
| ---                      | FENCE (EX)                    | 1                     | *XFEN              | SF-FENC-EXST-LIN                           |
| ---                      | FENCE (PROP)                  | 2                     | *FEN               | SF-FENC-PROP-LIN                           |
| ---                      | GUARDRAIL (EX)                | 1                     | *EGRI              | SF-GURD-EXST-LIN                           |
| ---                      | GUARDRAIL (PROP)              | 3                     | *PGRI              | SF-GURD-PROP-LIN                           |
| ---                      | LAKE/POND                     | 2                     | LAKE               | SF-LAKE-EXST-LIN                           |
| ---                      | SWAMP/WETLAND PERIMETER       | 2                     | MARSH              | SF-WETL-EXST-LIN                           |
| ---                      | RAILROAD                      | 2                     | *RIRI              | SF-RLRD-EXST-LIN                           |
| ---                      | RETAINING WALL (EX)           | 1                     | *ERWI              | SF-WALL-EXST-LIN                           |
| ---                      | RETAINING WALL (PROP)         | 3                     | *PRWI              | SF-WALL-PROP-LIN                           |
| ---                      | TRAILER (EX)                  | 1                     | CONTINUOUS         | SF-TRLR-EXST-LIN                           |
| ---                      | DECK LINE                     | 1                     | CONTINUOUS         | SF-DECK-EXST-LIN                           |
| ---                      | DOCK (EX)                     | 1                     | CONTINUOUS         | SF-DOCK-EXST-LIN                           |
| ---                      | MAIL BOX (LINE)               | 1                     | CONTINUOUS         | SF-MAIL-EXST-LIN                           |
| ---                      | PIPE/NOT DRAINAGE (EX)        | 1                     | SDASH              | SF-PIPE-EXST-LIN                           |
| ---                      | PIPE/NOT DRAINAGE (PROP)      | 2                     | CONTINUOUS         | SF-PIPE-PROP-LIN                           |
| ---                      | BRIDGE (EX)                   | 1                     | EXBULD             | SF-BRDC-EXST-LIN                           |
| ---                      | BRIDGE (PROP)                 | 2                     | CONTINUOUS         | SF-BRDC-PROP-LIN                           |
| ---                      | GENERAL STRUCT. (EX)          | 3                     | CONTINUOUS         | SF-MSC-EXST-LIN                            |
| ---                      | GENERAL STRUCT. (PROP)        | 3                     | CONTINUOUS         | SF-MSC-PROP-LIN                            |
| ---                      | PARKING METER (LINE)          | 1                     | CONTINUOUS         | SF-SIGN-EXST-LIN                           |
| ---                      | TANK LINE (EX)                | 1                     | CONTINUOUS         | SF-TANK-EXST-LIN                           |
| ---                      | VAULT LINE (EX)               | 1                     | EXBULD             | SF-VALT-EXST-LIN                           |
| ---                      | VEGETATION LINE/HEDGE         | 1                     | CONTINUOUS         | SF-VEGE-EXST-LIN                           |
| ---                      | CUT                           | 1                     | *CONTINUOUS        | SF-CRCL-EXST-LIN                           |
| ---                      | FILL                          | 1                     | *CONTINUOUS        | SF-CRFL-EXST-LIN                           |

**LINETYPES**

| LINETYPE       | DESCRIPTION                    | LINE WIDTH EXIST/PROP | LT NAME *SPEC. LT. | LAYER            |
|----------------|--------------------------------|-----------------------|--------------------|------------------|
| <b>SURVEY:</b> |                                |                       |                    |                  |
| ---            | CENTERLINE (PROP) CITY         | 4                     | CONTINUOUS         | SV-CNTL-PROP-LIN |
| ---            | CENTERLINE (PROP) COUNTY       | 3                     | CENTER             | SV-CNTL-PROP-LIN |
| ---            | BREAKLINE (EX)                 | 1                     | CONTINUOUS         | SV-BRKL-EXST-LIN |
| ---            | CONTOUR (DEPRESSION)           | 1                     | *DECT              | SV-CONT-DEPR-LIN |
| ---            | CONTOUR (EX)                   | 1                     | CON                | SV-CONT-EXST-LIN |
| ---            | CONTOUR (INDEX)                | 2                     | CON                | SV-CONT-INDX-LIN |
| ---            | CONTOUR (PROPOSED)             | 2                     | CONTINUOUS         | SV-CONT-PROP-LIN |
| ---            | DONATION LAND CLAIM (EX)       | 1                     | DLC                | SV-DLCM-EXST-LIN |
| ---            | DONATION LAND CLAIM (PROP)     | 4                     | DLC                | SV-DLCM-PROP-LIN |
| ---            | EASEMENT (PERMANENT)           | 3                     | CONTINUOUS         | SV-ESMT-PERM-LIN |
| ---            | EASEMENT (TEMPORARY)           | 3                     | TEMPESMT           | SV-ESMT-TEMP-LIN |
| ---            | MEANDER LINE                   | 1                     | MEANDER            | SV-MEAN-EXST-LIN |
| ---            | PROPERTY LINE (EX)             | 1                     | CONTINUOUS         | SV-PROP-EXST-LIN |
| ---            | PROPERTY LINE (PROP)           | 4                     | CONTINUOUS         | SV-PROP-PROP-LIN |
| ---            | RANGE/TOWNSHIP LINE            | 4                     | CONTINUOUS         | SV-222C-EXST-LIN |
| ---            | RESERVATION/PARK/FOREST (EX)   | 2                     | PARK               | SV-PARK-EXST-LIN |
| ---            | RESERVATION/PARK/FOREST (PROP) | 4                     | PARK               | SV-PARK-PROP-LIN |
| ---            | RIGHT-OF-WAY (EX)              | 2                     | EXROW              | SV-ROFW-EXST-LIN |
| ---            | RIGHT-OF-WAY (PROP)            | 4                     | CONTINUOUS         | SV-ROFW-PROP-LIN |
| ---            | RIGHT-OF-WAY (LIMITED ACCESS)  | 1                     | *RDWL              | SV-LDOW-EXST-LIN |
| ---            | RIGHT-OF-WAY (LIMITED ACCESS)  | 3                     | *RDWL              | SV-LDOW-PROP-LIN |
| ---            | SECTION LINE                   | 3                     | SECT               | SV-SECT-EXST-LIN |
| ---            | QUARTER SECTION LINE           | 2                     | QTRSECT            | SV-QSCT-EXST-LIN |
| ---            | SIXTEENTH SECTION LINE         | 1                     | 16THSECT           | SV-16ST-EXST-LIN |
| ---            | STATE/COUNTY/CORPORATE LIMIT   | 2                     | STATE              | SV-222D-EXST-LIN |
| ---            | STATE/COUNTY/CORPORATE LIMIT   | 4                     | STATE              | SV-222D-PROP-LIN |
| ---            | SURVEY CENTERLINE              | 1                     | EXCHTL             | SV-CLSV-EXST-LIN |
| ---            | PROPERTY OWNERSHIP             | 2                     | OWNDOT             | SV-OWNS-EXST-LIN |
| ---            | RAILROAD RIGHT OF WAY          | 2                     | RRW                | SV-RWR-EXST-LIN  |
| ---            | CONSTRUCTION PERMIT            | 3                     | CONTINUOUS         | SV-CPM1-PROP-LIN |

**DESCRIPTOR**

| PROPOSED | EXISTING | UTILITIES:                        |                  |
|----------|----------|-----------------------------------|------------------|
| ---      | ---      | CABLE TELEVISION (AERIAL)         | TV-ALIN-3333-LIN |
| ---      | ---      | CABLE TELEVISION (BURIED)         | TV-BLIN-3333-LIN |
| ---      | ---      | TRAFFIC (AERIAL)                  | TF-ALIN-3333-LIN |
| ---      | ---      | TRAFFIC (BURIED)                  | TF-BLIN-3333-LIN |
| ---      | ---      | FORCE MAIN (LIST SIZE & TYPE)     | SS-PLW-3333-LIN  |
| ---      | ---      | GAS (LIST SIZE)                   | GS-PLN-3333-LIN  |
| ---      | ---      | OL (LIST SIZE)                    | OL-PLN-3333-LIN  |
| ---      | ---      | POWER (AERIAL)                    | PO-ALIN-3333-LIN |
| ---      | ---      | POWER (BURIED)                    | PO-BLIN-3333-LIN |
| ---      | ---      | SANITARY SEWER (LIST SIZE & TYPE) | SS-222F-3333-LIN |
| ---      | ---      | STEAM (LIST SIZE)                 | ST-PLN-3333-LIN  |
| ---      | ---      | STORM DRAINAGE (LIST SIZE & TYPE) | SD-222F-3333-LIN |
| ---      | ---      | TELEPHONE (AERIAL)                | TL-ALIN-3333-LIN |
| ---      | ---      | TELEPHONE (BURIED)                | TL-BLIN-3333-LIN |
| ---      | ---      | WATER (LIST SIZE & TYPE)          | WA-222F-3333-LIN |

TYPES OF PIPE:  
 STL - STEEL  
 CMC - CONCRETE  
 PVC - POLYVINYL CHLORIDE  
 DI - DUCTAL IRON  
 AC - ASBESTOS CONCRETE  
 AL - ALUMINUM

NOTE: ALL UTILITY SERVICES REQUIRE AN ALPHANUMERIC DESCRIPTOR STRING TO CLARIFY SPECIFIC TYPE OF SERVICE AS SHOWN ABOVE. AERIAL SERVICE DESCRIPTOR STRINGS MUST BEGIN WITH THE LETTER "A". ALL SERVICE DESCRIPTOR STRINGS BEGINNING WITHOUT THE LETTER "A" WILL BE ASSUMED BURIED. FOR INSTRUCTIONS ON CHANGING SIZE THROUGH MENU SEE DCS13A.DOC.

\* - SPECIAL LINETYPE-CREATED THROUGH USP ROUTINE/A LINETYPE  
 \*\* - PLACE TEXT & BREAK LINE AT INTERVALS SUFFICIENT FOR CLARITY  
 \*\*\* - INSERT ELEVATION AT 6" INTERVALS (TEXT 0.1" HIGH)

|     |      |    |       |       |          |
|-----|------|----|-------|-------|----------|
| NO. | DATE | BY | CHKD. | APPR. | REVISION |
|     |      |    |       |       |          |

SPOKANE COUNTY  
 DEPARTMENT OF PUBLIC WORKS  
 SPOKANE, WA. 99260 (509) 477-3600

APPROVED: \_\_\_\_\_  
 COUNTY ENGINEER  
 DATE: 4/24/03



STANDARD  
 DRAFTING STANDARDS

SHEET  
 A-17A

FILE No. STD17-A,B,C,D.DWG

PLOT DATE: 03-11-96

### CHANNELIZATION SYMBOLS

| SYMBOL / EXIST. | PROP. | DESCRIPTION                           | LINE WIDTH EXIST/PROP | BLOCK      | LAYER            |
|-----------------|-------|---------------------------------------|-----------------------|------------|------------------|
|                 |       | BIKE PATH                             |                       | CB/CBP     | TF-CHAN-3333-SYM |
|                 |       | HANDICAP SYMBOL                       |                       | CHS/CHSP   | TF-CHAN-3333-SYM |
|                 |       | H.O.V. LANE SYMBOL                    |                       | CHOV/CHOVP | TF-CHAN-3333-SYM |
|                 |       | ONLY                                  |                       | CO/COP     | TF-CHAN-3333-SYM |
|                 |       | RAILROAD CROSSING                     |                       | CRR/CRRP   | TF-CHAN-3333-SYM |
|                 |       | SCHOOL                                |                       | CSC/CSCP   | TF-CHAN-3333-SYM |
|                 |       | STOP                                  |                       | CS/CSP     | TF-CHAN-3333-SYM |
|                 |       | LANE CONTROL ARROWS: STRAIGHT ARROW   |                       | CSA/CSAP   | TF-CHAN-3333-SYM |
|                 |       | LANE CONTROL ARROWS: LEFT-RIGHT ARROW |                       | CLRS/CLRSP | TF-CHAN-3333-SYM |
|                 |       | LANE CONTROL ARROWS: LEFT-RIGHT ARROW |                       | CLR/CLRP   | TF-CHAN-3333-SYM |
|                 |       | 2-WAY LEFT TURN                       |                       | CLW/CLWP   | TF-CHAN-3333-SYM |
|                 |       | LEFT TURN ARROW                       |                       | CLT/CLTP   | TF-CHAN-3333-SYM |
|                 |       | RIGHT TURN ARROW                      |                       | CLRT/CLRTP | TF-CHAN-3333-SYM |
|                 |       | LEFT-STRAIGHT ARROW                   |                       | CLS/CLSP   | TF-CHAN-3333-SYM |
|                 |       | RIGHT-STRAIGHT ARROW                  |                       | CLRS/CLRSP | TF-CHAN-3333-SYM |
|                 |       | RAISED MARKERS: LANE MARKERS TYPE I   |                       | CLM1/CLM1P | TF-CHAN-3333-SYM |
|                 |       | RAISED MARKERS: LANE MARKERS TYPE II  |                       | CLM2/CLM2P | TF-CHAN-3333-SYM |
|                 |       | CONCRETE BARRIER*                     |                       | CBR/CRBP   | TF-STCR-3333-SYM |
|                 |       | CONCRETE BARRIER TERMINAL END*        |                       | CBRT/CBRTP | TF-STCR-3333-SYM |

EXISTING FEATURE USE WIDTH NUMBER 1  
PROPOSED FEATURE USE WIDTH NUMBER 2

USE EXST/PROP - 3333

\* - THESE FEATURES SHOWN AT 50% OF RECOMMENDED SCALE.  
\*\* - TO SCALE IF POSSIBLE.

### SIGNALIZATION SYMBOLS

| SYMBOL / EXIST.                            | PROP. | DESCRIPTION   | LINE WIDTH EXIST/PROP | BLOCK                                  | LAYER  |
|--|-------|---|-----------------------|--|--|
|  |       | AERIAL DISCONNECT   |                       | TAD/TADP                               | TF-SIGL-3333-SYM   |
|  |       | AERIAL TERMINAL COMPARTMENT                                 |                       | TATC/TATCP                             | TF-SIGL-3333-SYM   |
| <b>DETECTORS:</b>                          |       |   |                       |  |  |
|  |       | DETECTOR LOOP TYPE I  |                       | TD0/TD0P                               | TF-SIGL-3333-SYM   |
|  |       | DETECTOR LOOP TYPE II                                       |                       | TD0/TD0P                               | TF-SIGL-3333-SYM   |
|  |       | PEDESTRIAN DETECTOR   |                       | TP0/TP0P                               | TF-SIGL-3333-SYM   |
| <b>EMERGENCY VEHICLE INDICATOR LIGHTS:</b> |       |   |                       |  |  |
|  |       | EMERGENCY VEHICLE INDICATOR LIGHTS: FLASHING WARNING SYSTEM |                       | TFWS/TFWSP                             | TF-SIGL-3333-SYM   |
|  |       | INDICATOR LIGHTS  |                       | TL/TLP                                 | TF-SIGL-3333-SYM   |
|  |       | EVP SENSOR  |                       | TOS/TOSP                               | TF-SIGL-3333-SYM   |
|  |       | EVP SENSOR W/ INDICATOR LIGHTS                              |                       | TOSL/TOSLP                             | TF-SIGL-3333-SYM   |
| <b>JUNCTION BOX/CONTROLLERS:</b>           |       |   |                       |  |  |
|  |       | JUNCTION BOX (TYPE I, II, III)                              | (-B)                  | TJB1/TJB1P<br>TJB2/TJB2P<br>TJB3/TJB3P | TF-SIGL-3333-SYM<br>TF-SIGL-3333-SYM<br>TF-SIGL-3333-SYM |
|  |       | CONTROL CABINET   |                       | TSC/TSCP                               | TF-SIGL-3333-SYM   |
|  |       | SERVICE CABINET   |                       | TSLC/TSLCP                             | TF-SIGL-3333-SYM   |
| <b>NOTES:</b>                              |       |   |                       |  |  |
|  |       | POLE NOTE   |                       | TPN                                    | TF-SIGL-3333-SYM   |
|  |       | WIRE NOTE   |                       | TWN                                    | TF-SIGL-3333-SYM   |
|  |       | SIGN FLAG NOTE *  |                       | TFN/TFNP                               | TF-SIGL-3333-SYM   |
| <b>POLES:</b>                              |       |   |                       |  |  |
|  |       | PEDESTRIAN PUSHBUTTON (PB) POST W/ PUSHBUTTON               |                       | TPB/TPBP                               | TF-SIGL-3333-SYM   |
|  |       | SIGNAL POLE TYPE I *  |                       | TPOL/TPOLP                             | TF-SIGL-3333-SYM   |
|  |       | SIGNAL POLE TYPE II *                                       |                       | TSPDL/TSPDLP                           | TF-SIGL-3333-SYM   |
|  |       | SIGNAL POLE TYPE III *                                      |                       | TSP/TSPP                               | TF-SIGL-3333-SYM   |
|  |       | STREET LIGHT ASSEMBLY                                       |                       | TSLA/TSLAP                             | TF-SIGL-3333-SYM   |
| <b>RAILROAD CROSSING:</b>                  |       |   |                       |  |  |
|  |       | R/R CROSSING GATE   |                       | TRG/TRGP                               | TF-SIGL-3333-SYM   |
|  |       | R/R CROSSING SIGNAL   |                       | TRC/TRCP                               | TF-SIGL-3333-SYM   |
| <b>SIGNAL HEADS:</b>                       |       |   |                       |  |  |
|  |       | PEDESTRIAN SIGNAL HEAD                                      |                       | TPSH/TPSHP                             | TF-SIGL-3333-SYM   |
|  |       | VEHICLE SIGNAL HEAD   |                       | TVH/TVHP                               | TF-SIGL-3333-SYM   |
| <b>TRAFFIC SIGNS:</b>                      |       |   |                       |  |  |
|  |       | SIGN *  |                       | TF SN/TF SNP                           | TF-SIGN-3333-SYM   |
|  |       | BRIDGE  |                       | TSB/TSBP                               | TF-SIGN-3333-SYM   |
|  |       | CANTILEVERED  |                       | TSC/TSCLP                              | TF-SIGN-3333-SYM   |
|  |       | DOUBLE POST   |                       | TSD/TSDP                               | TF-SIGN-3333-SYM   |
|  |       | SINGLE POST   |                       | TSS/TSSP                               | TF-SIGN-3333-SYM   |

EXISTING FEATURE USE WIDTH NUMBER 1  
PROPOSED FEATURE USE WIDTH NUMBER 2

USE EXST/PROP - 3333

| NO. | DATE | BY | CHKD. | APPR. | REVISION |
|-----|------|----|-------|-------|----------|
|     |      |    |       |       |          |

SPokane County  
DEPARTMENT OF PUBLIC WORKS  
SPOKANE, WA. 99260 (509) 477-3600

APPROVED:  
COUNTY ENGINEER  
DATE: 4/24/03



FILE No. STD17-A,B,C,D,DWG

STANDARD  
DRAFTING STANDARDS

SHEET  
A-17B

PLOT DATE: 03-11-96

# SURVEY SYMBOLS

| SYMBOL         | DESCRIPTION (ABBR) | LINE                      | BLOCK     | LAYER                       |
|----------------|--------------------|---------------------------|-----------|-----------------------------|
| THEOR./EXIST.  | FOUND/PROP.        | WIDTH                     | EXST/PROP |                             |
| Δ.A.P.#1       | Δ.A.P.#1           | ANGLE POINT               | (AP) 1/2  | SAP/SAPP SV-CTRL-3333-SYM   |
| +              | +                  | BENCH MARK                | (BM) 1/2  | SBM/SBMP SV-CTRL-3333-SYM   |
| +              | +                  | BLOCK CORNER              | (BC) 1/2  | SBC/SBCP SV-CTRL-3333-SYM   |
| oIP            | oIP                | IRON PIPE                 | (IP) 1/2  | SP/SPP SV-CTRL-3333-SYM     |
| Mon.           | Mon.               | MONUMENT (IN CASE)        | (MC) 1/2  | SMC/SMCP SV-CTRL-3333-SYM   |
| Mon.           | Mon.               | MONUMENT (SURFACE)        | (MCH) 1/2 | SMON/SMONP SV-CTRL-3333-SYM |
| —              | —                  | OWNERSHIP TIE             | (OT) 1    | SOT SV-LOTN-3333-SYM        |
| SECTION DATA:  |                    |                           |           |                             |
| ④              |                    | SECTION CENTER            | 3         | SSCT SV-SECT-3333-SYM       |
| 14713<br>23124 | 14713<br>23124     | SECTION CORNER            | 2/2       | SSC/SSCP SV-SECT-3333-SYM   |
| 12<br>13       | 12<br>13           | QUARTER CORNER            | 2/2       | SQC/SQCP SV-OSCT-3333-SYM   |
| 14713          | 14713              | SIXTEENTH CORNER          | 1/3       | SSXC/SSXCP SV-16ST-3333-SYM |
| 14713          | 14713              | CLOSING CORNER            | 2/2       | SOC/SOCP SV-222A-3333-SYM   |
| MC             | MC                 | MEANDER CORNER            | (MC) 1/2  | SMC/SMCP SV-222A-3333-SYM   |
| WC             | WC                 | WITNESS CORNER            | (WC) 1/2  | SWC/SWCP SV-SECT-3333-SYM   |
| SB             | SB                 | SOL. BORING               | (SB) 1/2  | SSB/SSBP SV-SOL-3333-SYM    |
| SE             | SE                 | SPOT ELEVATION            | (SE) 1/2  | SSE/SSEP SV-CTRL-3333-SYM   |
| 45133.1234     |                    | TAX LOT / ASSESSOR NUMBER | 3         | SLH SV-222B-3333-SYM        |

SEC. 15 T.25N. R.43 E.W.M. SECTION, TOWNSHIP, RANGE" 2 SSTR SV-NOTE-EXST-SYM

25 RIGHT OF WAY PLAN PARC. No.

BLOCK: SNA  
LAYER: SV-NDRA-3333-SYM

BLOCK: SDAT  
LAYER: SV-DATM-3333-SYM

# REFERENCE/GENERAL NOTATION SYMBOLS

| SYMBOL         | DESCRIPTION (ABBR)     | LINE                   | BLOCK     | LAYER                  |
|----------------|------------------------|------------------------|-----------|------------------------|
| EXIST.         | PROP.                  | WIDTH                  | EXST/PROP |                        |
| CALL           | PROP.                  | 456-8000               | 2         | CALL ON-CALL-PROP-SYM  |
| BEFORE YOU DIG | ONE CALL NUMBER        | 48 HR. NOTICE REQUIRED |           |                        |
| →              | BEGN-END PROJECT ARROW |                        | 2         | BEARW ON-SCOP-PROP-SYM |
| →              | ARROW                  |                        | 2         | ARW ON-222A-3333-SYM   |
| ○              | INTERSECTION POINT     |                        | 2         | INTP ON-222B-3333-SYM  |
| ○              | STORM DRAIN *          |                        |           |                        |

USE FEATURE IS BEING DIMENSIONED - 222A  
USE CRW - FOR - 222B  
FE, PC & PI OF HORIZONTAL CURVES  
USE CURV - FOR - 222B  
VERTICAL CURVES  
USE SNT - FOR - 222B  
STREET INTERSECTIONS  
USE EXST/PROP - 3333  
OR FOUR/THEO

# SANITARY/STORM SEWER SYMBOLS

| SYMBOL | DESCRIPTION (ABBR) | LINE                     | BLOCK      | LAYER                       |
|--------|--------------------|--------------------------|------------|-----------------------------|
| EXIST. | PROP.              | WIDTH                    | EXST/PROP  |                             |
| o.C.D. | o.C.D.             | SAN. SEWER CLEAN OUT     | (CO) 1/2   | SSCO/SSCOP SS-STOR-3333-SYM |
| ○MH    | ○MH                | SAN. SEWER MANHOLE (SMH) | 1/2        | SSMH/SSMHP SS-STOR-3333-SYM |
| C.C.B. | C.C.B.             | STORM DRAIN CATCH BASIN  | (CB) 1/2   | SOCB/SOBCP SD-STOR-3333-SYM |
| =      | =                  | STORM DRAIN * CULVERT    | (CULV) 1/3 | SOC/SOCP SD-GLN-3333-SYM    |
| ○MH    | ○MH                | STORM DRAIN MANHOLE      | (SDMH) 1/2 | SDMH/SDMHP SD-STOR-3333-SYM |
| ○DW    | ○DW                | STORM DRAIN DRYWELL (DW) | 1/2        | SDDW/SDDWP SD-STOR-3333-SYM |
| □IN    | □IN                | STORM DRAIN INLET (IN)   | 1/2        | SODN/SODNP SD-STOR-3333-SYM |

MANHOLE NUMBER\*\* 1/2 MHT/MHTP SS-NOTE-3333-SYM

SEPTIC TANK 1 SEPT SS-STOR-EXST-SYM

STORM DRAIN STRUCTURE NOTE NUMBER 3 SDDU SD-NOTE-PROP-SYM

USE EXST/PROP - 3333

## NOTES

- PRINT CCSDOCIA.DOC FOR MORE INFORMATION ON SYMBOL/LINETYPE INSERTION AND USE OF CCS MENU.
  - SYMBOLS AND/OR LINETYPES NOT SHOWN IN THESE STANDARDS SHALL BE PLACED ON A LEGEND ON THE PLAN SHEETS.
  - INSERT MON OR MON-IN-CASE SYMBOLS INTO CENTER OF MONUMENTED SECTION CORNERS.
  - USE WATER VALVE AND FITTING SYMBOLS FOR SEWER FORCEMAIN VALVES AND FITTINGS.
  - LINeweIGHTS ARE BASED ON DISPOSABLE LINE WIDTH NUMBER LINE WIDTH (mm)
- | LIQUID INK PLOTTER POINT SIZES:                      | 1            | 0.25 |
|--|--------------|------|
| PEN No. 5 IS AVAILABLE IN REFILLABLE PLOTTER POINTS. | 2            | 0.35 |
|  | 3            | 0.5  |
|  | 4            | 0.7  |
|  | 5 (OPTIONAL) | 1.00 |
- LINETYPES ARE LOADED FROM THE CCS.LW LINETYPE FILE.
  - DITCH LINETYPE FLOW DIRECTION ARROW MUST BE INSERTED AT ENDS OF DASHED LINES AS SHOWN ABOVE (BLOCK NAME IS "DL").
  - COMPOSITE LINETYPES ARE DRAWN USING LSP ROUTINES IN CCS MENU. ALTERNATE METHOD IS TO INSERT BLOCKS ALONG CONTINUOUS LINES AS FOLLOWS:
- | LINETYPE                | BLOCK | SPACING (INCHES) |
|-------------------------|-------|------------------|
| EXISTING FENCE          | FP    | 0.5              |
| PROPOSED FENCE          | FPP   | 0.5              |
| EXISTING GUARDRAIL      | GR    | 0.5              |
| PROPOSED GUARDRAIL      | GRP   | 0.5              |
| EXISTING RAILROAD       | RR    | 0.5              |
| EXISTING RETAINING WALL | RW    | 0.25             |
| PROPOSED RETAINING WALL | RWP   | 0.25             |
| DEPRESSION CONTOUR      | DEP   | 0.1              |
| LIMITED ACCESS R.O.W.   | LA    | 0.1              |

\* - TO SCALE IF POSSIBLE  
\*\* - COUNTY MANHOLE NUMBER IS NEEDED ON ALL PLANS SUBMITTED. THE NUMBER REPRESENTS THE LOCATION IN NUMBER OF "CITY" BLOCKS EAST/WEST OF DIVISION AND NORTH/SOUTH OF SPRAGUE.

| NO. | DATE | BY | CHKD. | APPR. | REVISION |
|-----|------|----|-------|-------|----------|
|     |      |    |       |       |          |

SPOKANE COUNTY  
DEPARTMENT OF PUBLIC WORKS  
SPOKANE, WA. 99260 (509) 477-3600

APPROVED:  
COUNTY ENGINEER  
DATE: 4/24/03



STANDARD  
DRAFTING STANDARDS

SHEET  
A-17C

FILE No. STD17-A,B,C,D.DWG

PLOT DATE: 03-11-96

### WATER SYMBOLS

| SYMBOL         | PROF. | DESCRIPTION (ABBR)              | LINE BLOCK          | LAYER            |
|----------------|-------|---------------------------------|---------------------|------------------|
| EXIST.         | PROF. |                                 | WIDTH<br>EXIST/PROP |                  |
|                |       | CAP/PLUG                        | WCAP                | WA-FITT-3333-SYM |
|                |       | COUPLING (CPL)                  | WCOP/WCOUP          | WA-FITT-3333-SYM |
|                |       | GUARD POST (GP)                 | WGP/WGPP            | WA-FITT-3333-SYM |
|                |       | REDUCER (RED)                   | WRD/WREDP           | WA-FITT-3333-SYM |
|                |       | THRUST BLOCK (TB)               | WTB/WTBP            | WA-FITT-3333-SYM |
|                |       | SPRINKLER HEAD (SP)             | WSPR/WGSPR          | WA-FITT-3333-SYM |
|                |       | WATER METER (WM)                | WMET/WMETP          | WA-METR-3333-SYM |
| FIRE HYDRANTS: |       |                                 |                     |                  |
|                |       | 2-NOZZLE (FH)                   | WFH2/WFH2P          | WA-FHYD-3333-SYM |
|                |       | 3-NOZZLE (FH)                   | WFH3/WFH3P          | WA-FHYD-3333-SYM |
| JOINTS:        |       |                                 |                     |                  |
|                |       | FLANGE/BLIND FL. (FL)/(BL FL)   | WFL/WFLP            | WA-FITT-3333-SYM |
|                |       | MECHANICAL (MJ)                 | WMJ/WMJF            | WA-FITT-3333-SYM |
|                |       | PUSH-ON/HUB                     | WHUB/WHUBP          | WA-FITT-3333-SYM |
|                |       | THREAD (THD)                    | WTH/WTHP            | WA-FITT-3333-SYM |
| VALVES:        |       |                                 |                     |                  |
|                |       | AIR RELIEF (AR)                 | WARV/WARVP          | WA-VALV-3333-SYM |
|                |       | BLOW-OFF (BO)                   | WBOV/WBOVP          | WA-VALV-3333-SYM |
|                |       | BUTTERFLY (BF)                  | WBFV/WBFVP          | WA-VALV-3333-SYM |
|                |       | CHECK (CK)                      | WCKV/WCKVP          | WA-VALV-3333-SYM |
|                |       | GATE/GENERAL (WV)               | WGV/WGVF            | WA-VALV-3333-SYM |
|                |       | PLUG VALVE (PV)                 | WPU/WPUP            | WA-VALV-3333-SYM |
|                |       | ADAPTER, FL. x M.J.             | WAFU/WAFUC          | WA-FITT-3333-SYM |
| BENDS:         |       |                                 |                     |                  |
|                |       | 90 DEGREE BEND, FL.             | WBDF/SAME           | WA-FITT-3333-SYM |
|                |       | 45 DEGREE BEND, FL.             | WB45/SAME           | WA-FITT-3333-SYM |
|                |       | 22.5 DEGREE BEND, FL.           | WB22/SAME           | WA-FITT-3333-SYM |
|                |       | 11.25 DEGREE BEND, FL.          | WB11/SAME           | WA-FITT-3333-SYM |
|                |       | 90 DEGREE BEND, M.J.            | WB90/SAME           | WA-FITT-3333-SYM |
|                |       | 45 DEGREE BEND, M.J.            | WB45/SAME           | WA-FITT-3333-SYM |
|                |       | 22.5 DEGREE BEND, M.J.          | WB22/SAME           | WA-FITT-3333-SYM |
|                |       | 11.25 DEGREE BEND, M.J.         | WB11/SAME           | WA-FITT-3333-SYM |
|                |       | VERTICAL BEND, FL.              | WBVF/SAME           | WA-FITT-3333-SYM |
|                |       | VERTICAL BEND, M.J.             | WBVM/SAME           | WA-FITT-3333-SYM |
| REDUCERS:      |       |                                 |                     |                  |
|                |       | REDUCER, FL.                    | WRF/WRFV            | WA-FITT-3333-SYM |
|                |       | REDUCER, M.J.                   | WRM/WRMV            | WA-FITT-3333-SYM |
|                |       | REDUCER, M.J. x FL.             | WRMF/WRMFP          | WA-FITT-3333-SYM |
|                |       | REDUCER, M.J. x P.E.            | WRMB/WRMBP          | WA-FITT-3333-SYM |
|                |       | REDUCER, P.E. x M.J./FL. x M.J. | WRBM/WRBMP          | WA-FITT-3333-SYM |
| TEES:          |       |                                 |                     |                  |
|                |       | TAPPING TEE & VALVE, FL. x M.J. | WTTM/WTTMP          | WA-VALV-3333-SYM |
|                |       | TEE, FL.                        | WTF/SAME            | WA-FITT-3333-SYM |
|                |       | TEE, M.J.                       | WTM/SAME            | WA-FITT-3333-SYM |
|                |       | TEE, M.J. x FL.                 | WTMF/SAME           | WA-FITT-3333-SYM |
| VALVES:        |       |                                 |                     |                  |
|                |       | BUTTERFLY VALVE, FL. x M.J.     | WBVFU/WBVFUP        | WA-VALV-3333-SYM |
|                |       | BUTTERFLY VALVE, M.J.           | WBVM/WBVMV          | WA-VALV-3333-SYM |
|                |       | GATE VALVE, FL. x M.J.          | WGVU/WGVUP          | WA-VALV-3333-SYM |
|                |       | GATE VALVE, M.J.                | WGM/WGMV            | WA-VALV-3333-SYM |

USE EXST/PROP - 3333

### GAS/POWER/TELEPHONE/TV SYMBOLS

| SYMBOL | PROF. | DESCRIPTION (ABBR)                       | LINE BLOCK          | LAYER            |
|--------|-------|--|---------------------|------------------|
| EXIST. | PROF. |  | WIDTH<br>EXIST/PROP |                  |
|        |       | GAS METER (GM)                           | GMET/GMETP          | GS-METR-3333-SYM |
|        |       | GAS VALVE (GV)                           | GV/GVP              | GS-VALV-3333-SYM |
|        |       | PAD MOUNTED TRANSFORMER (P TRAN)         | PTRM/PTRAMP         | PO-STCR-3333-SYM |
|        |       | POWER VAULT (POW V)                      | PV/PVP              | PO-STCR-3333-SYM |
|        |       | TRANSMISSION TOWER (TRANS TWR)           | PTWR/PTRWP          | PO-STCR-EXST-SYM |
|        |       | UTILITY POLE (PP, TP)                    | UP/UPP              | 11-STCR-3333-SYM |
|        |       | UTILITY POLE ANCHOR (UPA/UPAP)           | UPA/UPAP            | 11-STCR-3333-SYM |
|        |       | TELEPHONE RISER (TEL R)                  | TELR/TELRP          | TL-STCR-3333-SYM |
|        |       | TELEPHONE VAULT (TEL V)                  | TV/TVP              | TL-STCR-3333-SYM |
|        |       | MISCELLANEOUS UTILITY BOX (UBX/UBXP)     | UBX/UBXP            | 11-STCR-3333-SYM |
|        |       | MISCELLANEOUS UTILITY MANHOLE (UMH/UMHP) | UMH/UMHP            | 11-STCR-3333-SYM |
|        |       | UNDERGROUND WARN. SIGN (UW*)             | UW*                 | 11-SIGN-3333-SYM |
|        |       | TELEPHONE BOOTH (TLB/TLBP)               | TLB/TLBP            | TL-STCR-3333-SYM |

USE PO/TL/TV - 11

USE EXST/PROP - 3333

\* - CHANGE ATTRIBUTE TEXT STRING TO INDICATE UTILITY TYPE: GAS, TEL, FIBR., ETC.

### SURFACE FEATURES/LANDSCAPING

| SYMBOL | PROF. | DESCRIPTION      | LINE BLOCK          | LAYER            |
|--------|-------|------------------|---------------------|------------------|
| EXIST. | PROF. |                  | WIDTH<br>EXIST/PROP |                  |
|        |       | BUS STOP         | 1/3 SFB/SFBSP       | SF-BUSS-3333-SYM |
|        |       | EMBANKMENT       | 1/2 SFB/SFBP        | SF-EMBT-3333-SYM |
|        |       | MAIL BOX         | 1/2 SFBM/SFBMP      | SF-MAIL-3333-SYM |
|        |       | RIP RAP          | 1/3 SFR/SFRP        | SF-RPR-3333-SYM  |
|        |       | ROCKERY          | 1/2 SFR/SFRP        | SF-ROCK-3333-SYM |
|        |       | SHRUB            | 1/3 SFS/SFSP        | SF-VEGE-3333-SYM |
|        |       | SIGN             | 1/2 SFSM/SFSMP      | SF-SIGN-3333-SYM |
|        |       | TREE (Conifer)   | 1/3 SFC/SFCP        | SF-VEGE-3333-SYM |
|        |       | TREE (Deciduous) | 1/3 SFD/SFDP        | SF-VEGE-3333-SYM |
|        |       | YARD LIGHT       | 1/2 SFL/SFLP        | SF-LITE-3333-SYM |
|        |       | PARKING METER    | 1/1 SFPM/SFPMP      | SF-STCR-3333-SYM |

USE EXST/PROP - 3333

| NO. | DATE | BY | CHKD. | APPR. | REVISION |
|-----|------|----|-------|-------|----------|
|     |      |    |       |       |          |

SPOKANE COUNTY  
 DEPARTMENT OF PUBLIC WORKS  
 SPOKANE, WA. 99260 (509) 477-3600

APPROVED:  
 COUNTY ENGINEER  
 DATE: 4/24/03

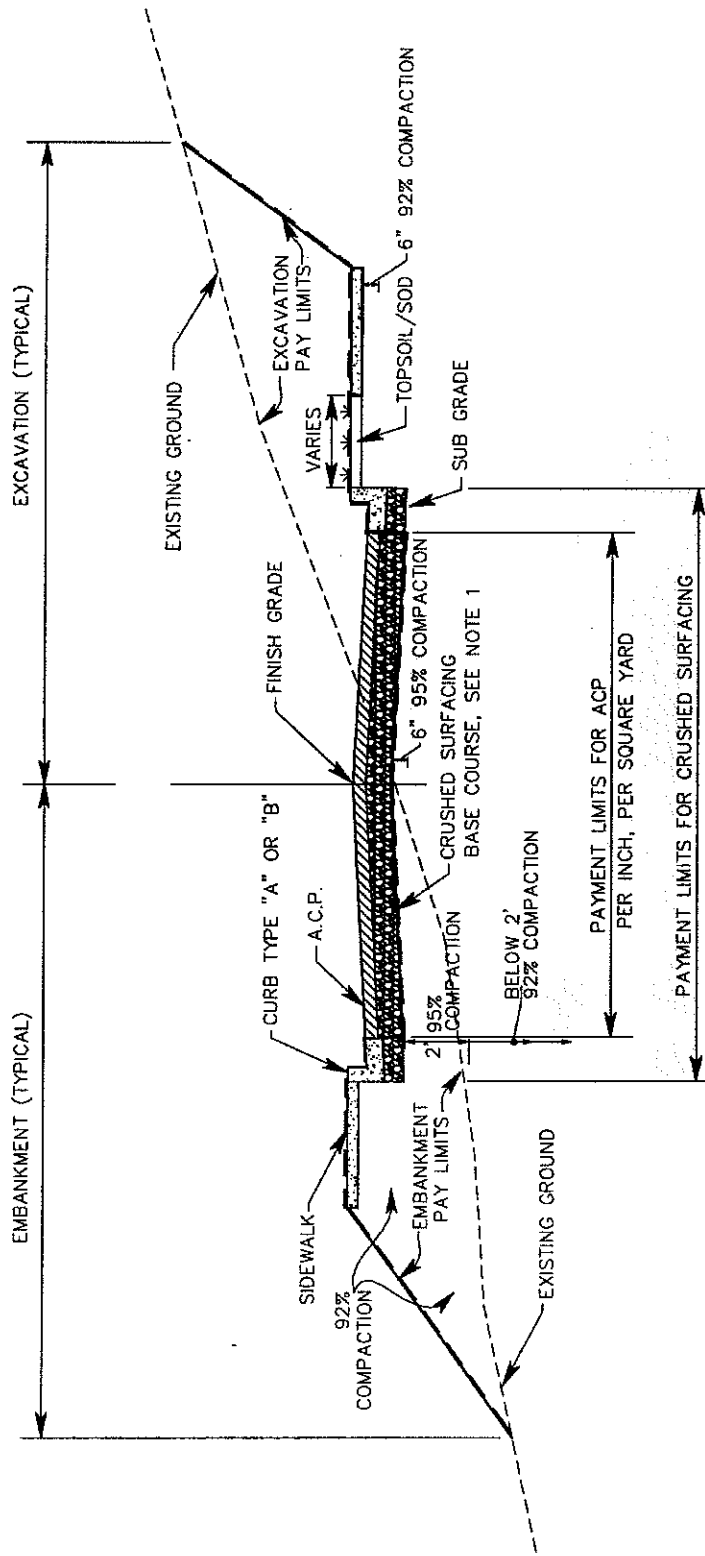


FILE No. STD17-A,B,C,D.DWG

STANDARD DRAFTING STANDARDS

SHEET A-17D

PLOT DATE: 03-11-96



### GENERAL NOTES

1. IF MEASURED BY C.Y., MEASUREMENT WILL BE COMPACTED IN PLACE AS PER TYPICAL SECTION.

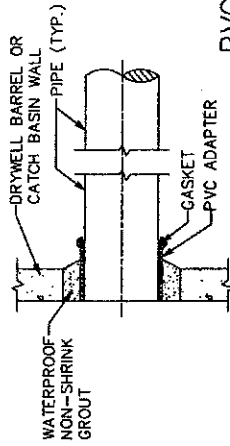
- STANDARD BID ITEMS:  
 ASPHALT CONCRETE PAVEMENT CL. ---'---' DEPTH, PER SQ. YD.  
 CRUSHED SURFACING BASE COURSE-- PER CUBIC YD.  
 CRUSHED SURFACING TOP COURSE-- PER CUBIC YD.  
 CEMENT CONCRETE SIDEWALK, PER SQ. YD.  
 CEMENT CONCRETE CURB TYPE ---, PER L.F.  
 ROADWAY EXCAVATION INCL. HAUL, PER C.Y.  
 EMBANKMENT COMPACTION, PER C.Y.  
 TOPSOIL TYPE A, PER C.Y.  
 SOD INSTALLATION, PER SQ. YD.



|   |        |                                   |                                     |          |          |
|---|--------|-----------------------------------|-------------------------------------|----------|----------|
| 1   | 1/7/03 | REVISOR                           | REVISOR                             | REVISION | REVISION |
|   |        | REVISED PAY LIMITS FOR CS&C ADDED |                                     |          |          |
|   |        | COMPACTION                        |                                     |          |          |
|   |        | NO. DATE BY CKD: JAPP             |                                     |          |          |
| APPROVED                                  |        |                                   | STANDARD                            |          |          |
| COUNTY: SPOKANE                           |        |                                   | ROADWAY CONSTRUCTION PAYMENT LIMITS |          |          |
| DATE: 1/7/03                              |        |                                   | SHEET A-18                          |          |          |
| SPOKANE COUNTY DEPARTMENT OF PUBLIC WORKS |        |                                   | POST DATE 9/7/02                    |          |          |
| SPOKANE, WA 99260 (509) 477-3600          |        |                                   |                                     |          |          |

### GENERAL NOTES

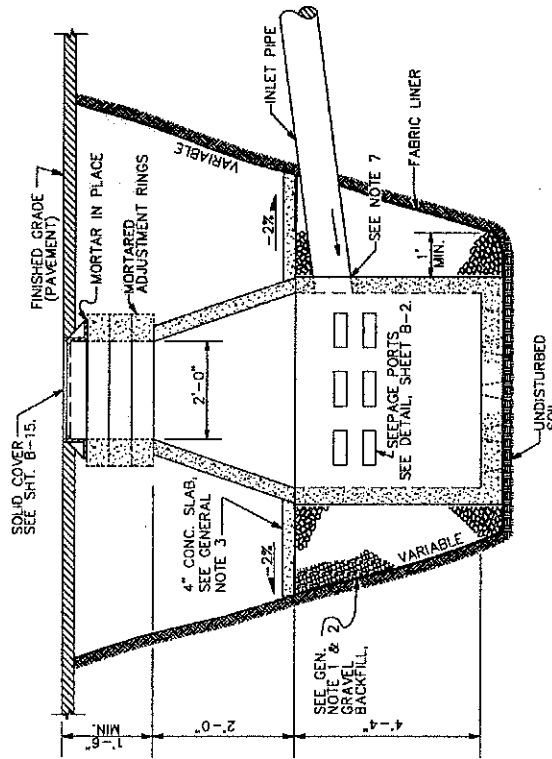
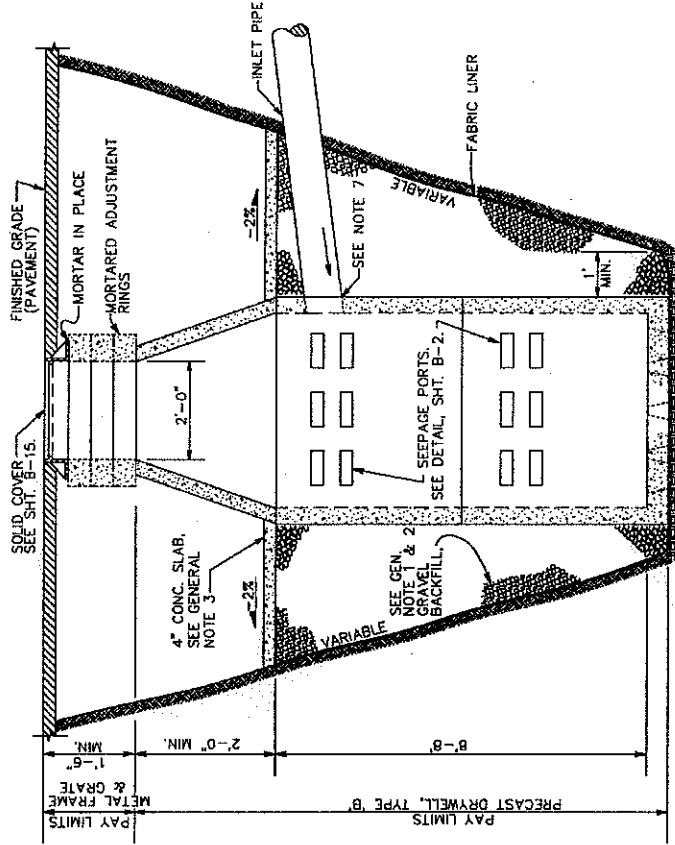
1. GRAVEL BACKFILL QUANTITY FOR DRYWELLS:  
 TYPE 'A' - 30 CUBIC YARDS MINIMUM / 42 TONS.  
 TYPE 'B' - 40 CUBIC YARDS MINIMUM / 56 TONS.  
 OR AS SPECIFIED ON ROAD PLANS.
2. SPECIAL BACKFILL MATERIAL FOR DRYWELLS SHALL CONSIST OF WASHED GRAVEL GRADED FROM 1" TO 3" WITH A MAXIMUM OF 5% PASSING THE U.S. No. 200 SCREEN, AS MEASURED BY WEIGHT, A MAXIMUM OF 10% OF THE AGGREGATE, AS MEASURED BY WEIGHT, MAY BE CRUSHED OR FRACTURED ROCK. THE REMAINING 90% SHALL BE NATURALLY OCCURRING UNFRACTURED MATERIAL.
3. CONCRETE SLAB SHALL BE CLASS 3000 CONCRETE.
4. SEE STANDARD PLANS SHEETS B-2 AND B-3 FOR PRECAST CONCRETE DETAILS.
5. ADJUSTMENT BLOCKS SHALL BE CEMENT CONCRETE.
6. PRECAST RISER MAY BE USED IN COMBINATION WITH OR IN LIEU OF ADJUSTING BLOCKS.
7. WHEN PVC PIPE IS USED A PVC ADAPTER SHALL BE INSTALLED.
8. PIPES SHALL BE GROUDED INTO DRYWELLS WITH NON-SHRINK GROUT.



### NOTE:

PVC PIPE ADAPTERS AND GASKET MAY VARY IN SHAPE AND SIZE AS ILLUSTRATED IN DETAIL BY ACCEPTABLE ALTERNATE IN ACCORDANCE WITH A.S.T.M. - C-428.

### PVC ADAPTER (SAND COLLAR)



### DRYWELL - TYPE 'A'

### DRYWELL - TYPE 'B'

|          |      |     |  |                 |                  |       |     |
|----------|------|-----|--|-----------------|------------------|-------|-----|
| 10/02/EP | LB/G | GSN | REVISED NOTE 3 & FABRIC LOCATION REVISED | APPROVED:       | STANDARD         | SHEET | 8-1 |
| 9/03/AB  | GSN  | RGH | SPECIAL BACKFILL NOTE ADDED              | COUNTY ENGINEER | PRECAST DRYWELLS |       |     |
| 5/03/AB  | GSN  | RGH | CHANGED GRAVEL BACKFILL QUANTITIES       | DATE: 4/11/03   |                  |       |     |
|          |      |     | REVISION                                 |                 |                  |       |     |

SPOKANE COUNTY  
 DEPARTMENT OF PUBLIC WORKS  
 SPOKANE, WA 99260 (509) 477-3600

NOT DATE 10/02/03

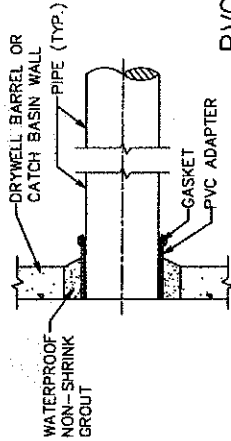


### GENERAL NOTES

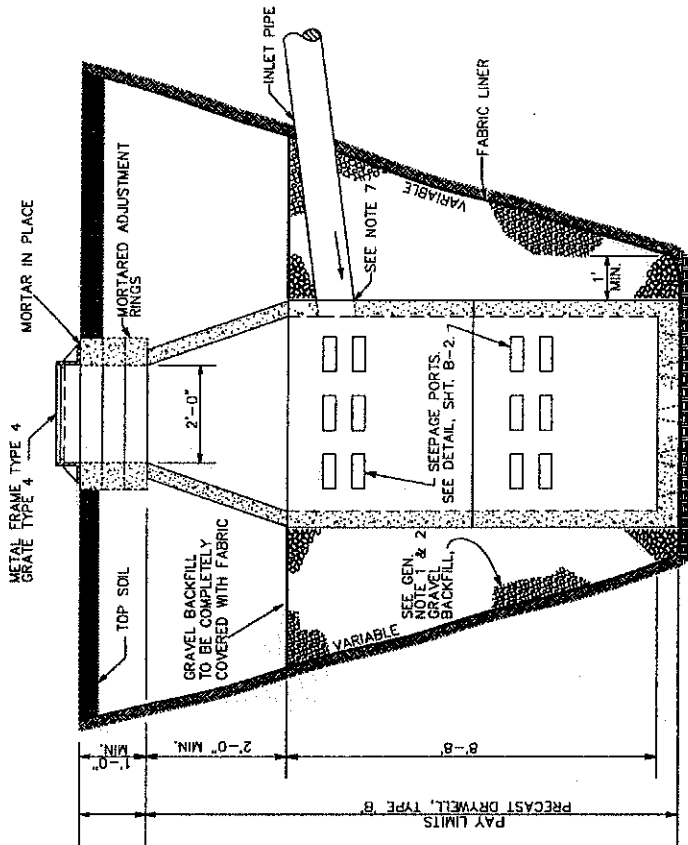
- GRAVEL BACKFILL QUANTITY FOR DRYWELLS:  
TYPE "A" - 30 CUBIC YARDS MINIMUM / 42 TONS.  
TYPE "B" - 40 CUBIC YARDS MINIMUM / 56 TONS.  
OR AS SPECIFIED ON ROAD PLANS.
- SPECIAL BACKFILL MATERIAL FOR DRYWELLS SHALL CONSIST OF WASHED GRAVEL GRADED FROM 1" TO 3" WITH A MAXIMUM OF 5% PASSING THE U.S. No. 200 SCREEN, AS MEASURED BY WEIGHT. A MAXIMUM OF 10% OF THE AGGREGATE, AS MEASURED BY WEIGHT, MAY BE CRUSHED OR FRACTURED ROCK. THE REMAINING 90% SHALL BE NATURALLY OCCURRING UNFRACTURED MATERIAL.
- FABRIC SHALL BE MODERATE SURVIVABILITY AS OUTLINED IN STANDARD SPECIFICATIONS 9-33
- SEE STANDARD PLANS SHEETS B-2 AND B-3 FOR PRECAST CONCRETE DETAILS.
- ADJUSTMENT BLOCKS SHALL BE CEMENT CONCRETE.
- PRECAST RISER MAY BE USED IN COMBINATION WITH OR IN LIEU OF ADJUSTING BLOCKS.
- WHEN PVC PIPE IS USED A PVC ADAPTER SHALL BE INSTALLED.
- PIPES SHALL BE GROUDED INTO DRYWELLS WITH NON-SHRINK GROUT.

### NOTE:

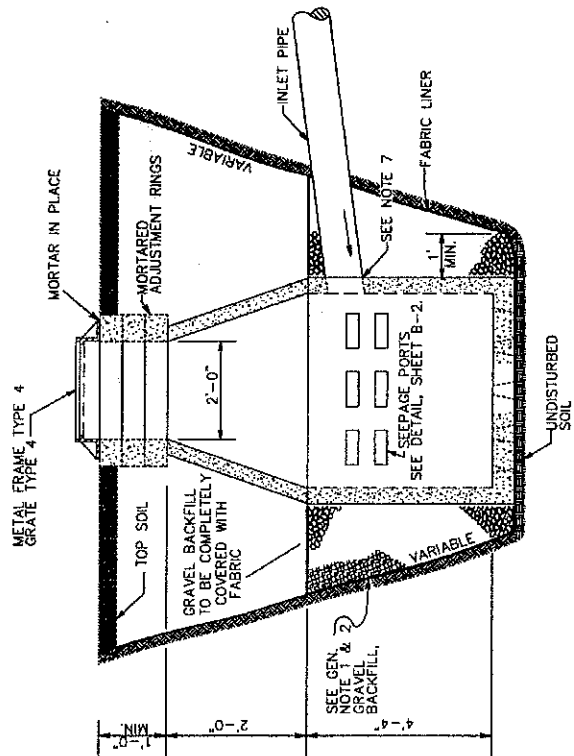
PVC PIPE ADAPTERS AND GASKET MAY VARY IN SHAPE AND SIZE AS ILLUSTRATED IN DETAIL BY ACCEPTABLE ALTERNATE IN ACCORDANCE WITH A.S.T.M.-C-428.



### PVC ADAPTER (SAND COLLAR)



### DRYWELL - TYPE 'B' SWALE



### DRYWELL - TYPE 'A' SWALE

|          |          |      |                |                 |          |
|----------|----------|------|----------------|-----------------|----------|
| NO. DATE | BY       | ISSN | REVISED NOTE # | FABRIC LOCATION | REVISION |
| 1        | 10/20/88 |      |                | B & C           |          |

APPROVED: *[Signature]*  
DATE: 11/11/88  
COUNTY: *[Signature]*

SPOKANE COUNTY DEPARTMENT OF PUBLIC WORKS  
SPOKANE, WA 99209 (509) 477-3600

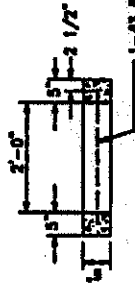
STANDARD PRECAST DRYWELLS PLACED IN SWALES

SHEET B-1a



**GENERAL NOTES**

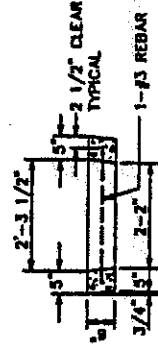
1. CONCRETE ITEMS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (AASHTO M199) & ASTM C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE PROJECT SPECIAL PROVISIONS.



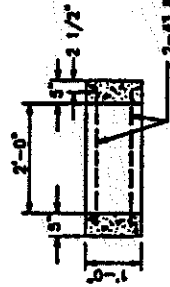
SECTION E-E



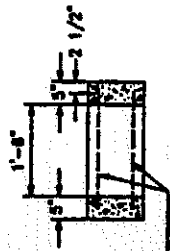
SECTION F-F



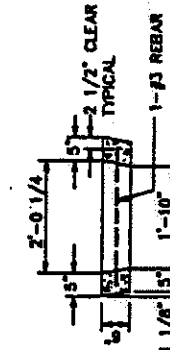
SECTION C-C



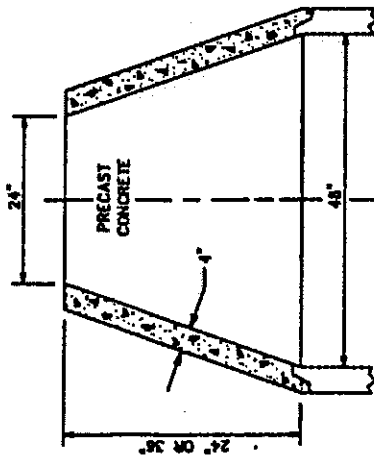
SECTION E-E



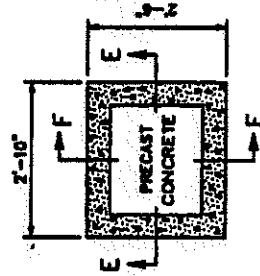
SECTION F-F



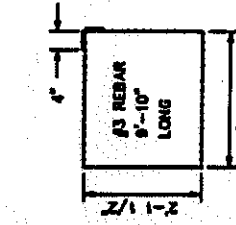
SECTION D-D



CONCENTRIC CONE



BENDING



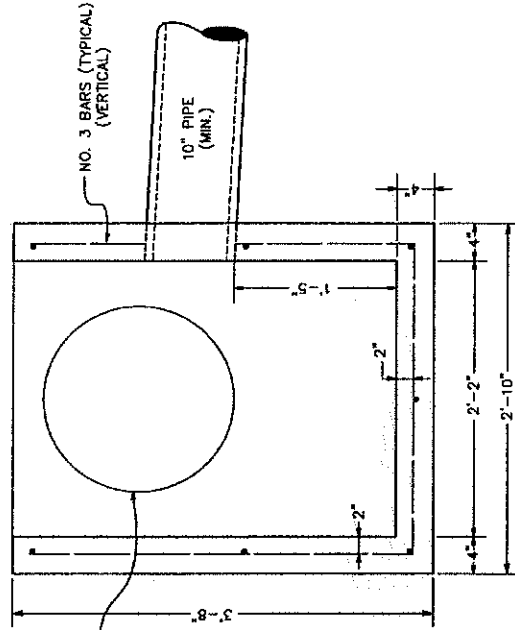
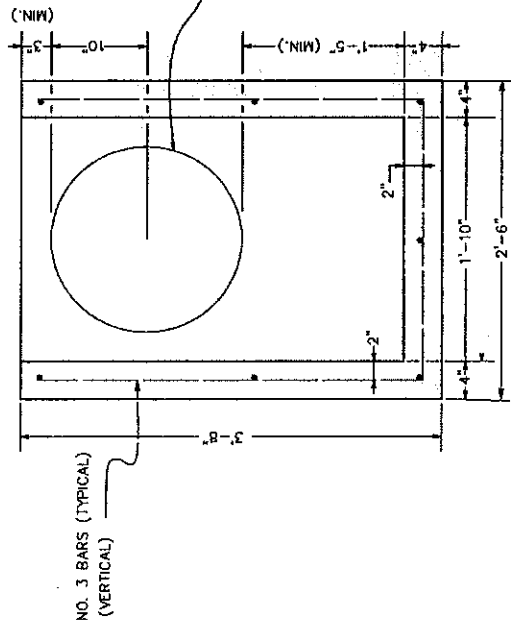
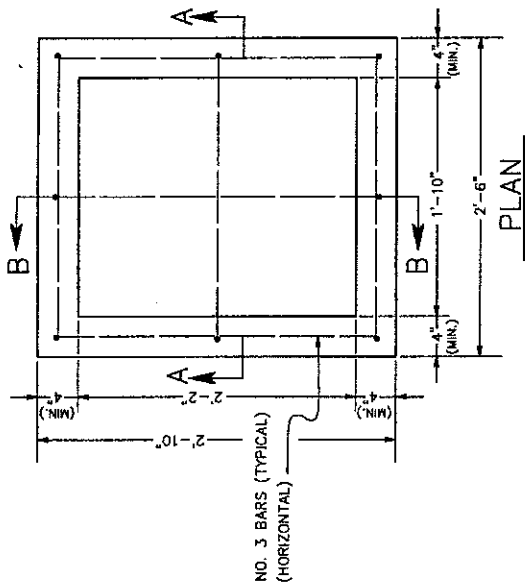
RISER, TYPE 1

RISER, TYPE 2

|                     |                                      |                |                            |                   |              |                                 |           |
|---------------------|--------------------------------------|----------------|----------------------------|-------------------|--------------|---------------------------------|-----------|
| 1/4" MIN. THICK ASH | ERASED SECTION LABEL ON RISER TYPE 1 | APPROVED:      | STANDARD                   | BY: [Signature]   | DATE: [Date] | PRECAST DRYWELL & INLET DETAILS | SHEET B-3 |
| FOUNDATION/CONCRETE | REVISION                             | SPokane County | DEPARTMENT OF PUBLIC WORKS | SPokane, WA 99208 | 456-3440     |                                 |           |

### GENERAL NOTES

1. CATCH BASIN SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (AASHTO M 199) & ASTM C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE PROJECT SPECIAL PROVISIONS.
2. AS AN ACCEPTABLE ALTERNATE TO REBAR, WELDED WIRE FABRIC HAVING A MINIMUM AREA OF 0.12 SQUARE INCHES PER FOOT MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A 497 (AASHTO M 221).
3. PRECAST BASINS SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM.
4. KNOCKOUTS SHALL BE ON ALL 4 SIDES WITH MAXIMUM DIAMETER OF 20". KNOCKOUTS SHALL BE ROUND. PIPE SHALL BE INSTALLED IN FACTORY SUPPLIED KNOCKOUTS.
5. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS CATCH BASIN WALL THICKNESS.
6. THE MAXIMUM DEPTH FROM THE FINISHED GRADE TO THE PIPE INVERT IS 5'-0".
7. THE TAPER ON THE SIDES OF THE PRECAST BASE SECTION AND RISER SECTION SHALL NOT EXCEED 1/2"/FT.
8. CATCH BASIN FRAME AND GRATE SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT.
9. FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO RISER.
10. WHEN PVC PIPE IS USED, A PVC ADAPTER SHALL BE INSTALLED. SEE DETAIL ON SHT B-1.
11. PVC ADAPTER SHALL BE GROUTED INTO CATCH BASIN, WITH WATERPROOF NON-SHRINK GROUT.



### SECTION A-A

### SECTION B-B

|           |      |       |                                     |
|-----------|------|-------|-------------------------------------|
| 4/10/2018 | 15.0 | USN   | REVISED NOTES # 10 & 11             |
| 3/23/18   | 15.0 | USN   | 10" DIMENSION FOR RADIUS OF OPENING |
| 2/1/18    | 15.0 | USN   | 10" DIMENSION FOR RADIUS OF OPENING |
| 1/23/18   | 15.0 | USN   | CHANGED TITLE TO CATCH BASIN TYPE 1 |
| 1/23/18   | 15.0 | USN   | MAXIMUM DEPTH NOTE # 6              |
| NO. DATE  | BY   | CHKD. | REVISION                            |

SPOKANE COUNTY  
DEPARTMENT OF PUBLIC WORKS  
SPOKANE, WA 99208  
(509) 477-3800

APPROVED:  
COUNTY ENGINEER  
DATE: 4/10/2018



STANDARD  
CATCH BASIN TYPE 1

SP-15.010  
SHEET  
B-4

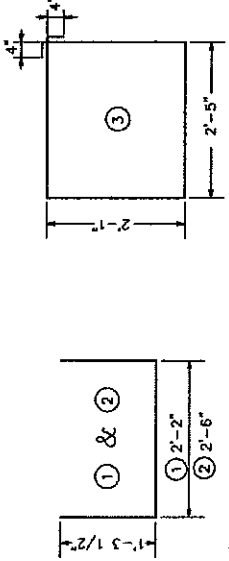
POST DATE 04/26/18

**GENERAL NOTES**

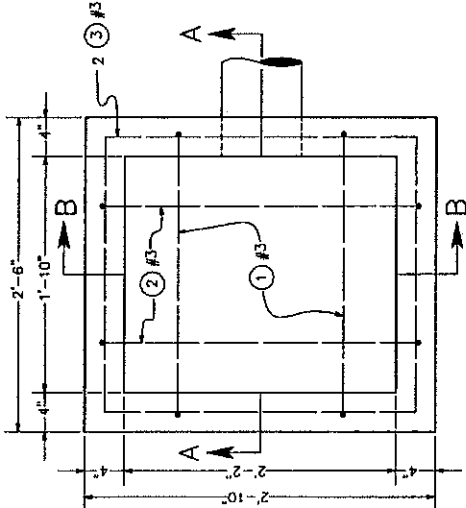
1. CONCRETE INLET SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (AASHTO M 195) & ASTM C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE PROJECT SPECIAL PROVISIONS.
2. REINFORCING STEEL SHALL BE GRADE 40 OR GRADE 60.
3. CONCRETE INLETS SHALL BE SET ON A COMPACTED OR UNDISTURBED LEVEL FOUNDATION.
4. AS AN ACCEPTABLE ALTERNATE TO REBAR, WELDED WIRE FABRIC HAVING A MINIMUM AREA OF 12 SQUARE INCHES PER FOOT MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A 497 (AASHTO M 22). WIRE FABRIC SHALL NOT BE PLACED IN THE KNOCKOUTS.
5. WHEN PVC PIPE IS USED, A SAND COLLAR SHALL BE INSTALLED. SEE DETAIL SHT. B-1.
6. INLET PIPE SHALL BE GROUTED INTO CONCRETE INLET, WITH WATERPROOF NON-SHRINK GROUT.
7. KNOCKOUTS SHALL BE ON ALL 4 SIDES WITH MAXIMUM DIAMETER OF 17". KNOCKOUTS SHALL BE ROUND. PIPE SHALL BE INSTALLED IN FACTORY SUPPLIED KNOCKOUTS.

| MARK | LOCATION                | NO. | SIZE | LENGTH |
|------|-------------------------|-----|------|--------|
| ①    | BOTTOM SLAB & SIDEWALLS | 2   | 3    | 4'-9"  |
| ②    | BOTTOM SLAB & SIDEWALLS | 2   | 3    | 5'-1"  |
| ③    | SIDEWALLS               | 2   | 3    | 9'-8"  |

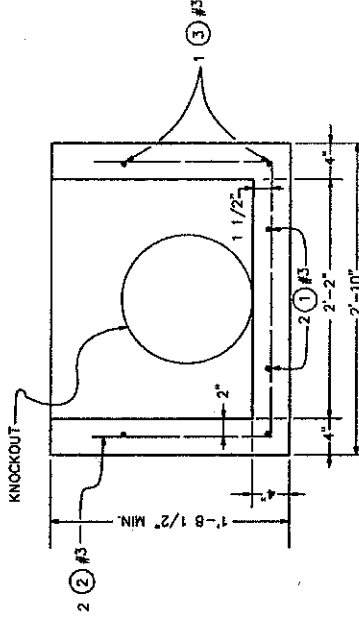
**BAR LIST**



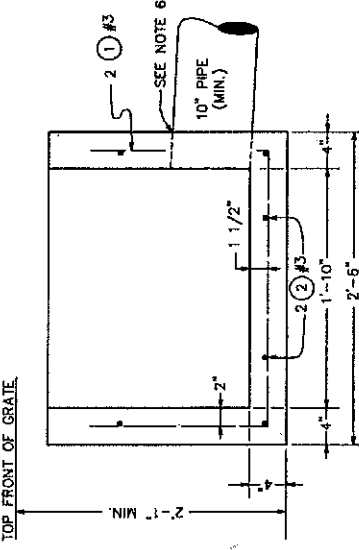
**BENDING DIAGRAM**



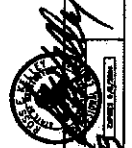
**PLAN**



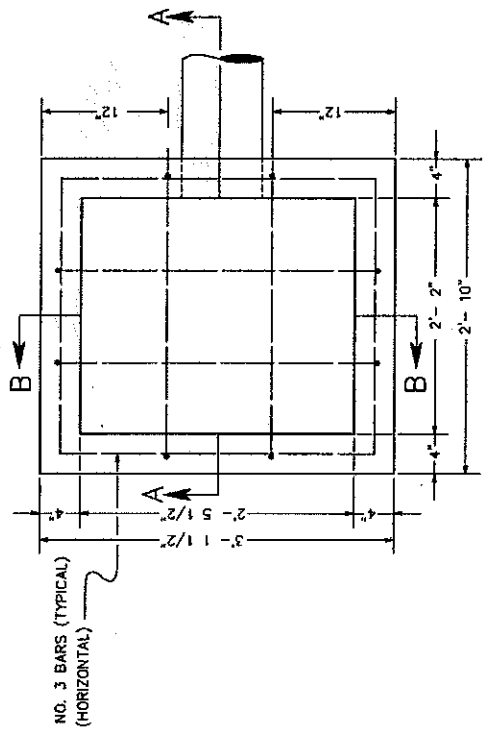
**SECTION B-B**



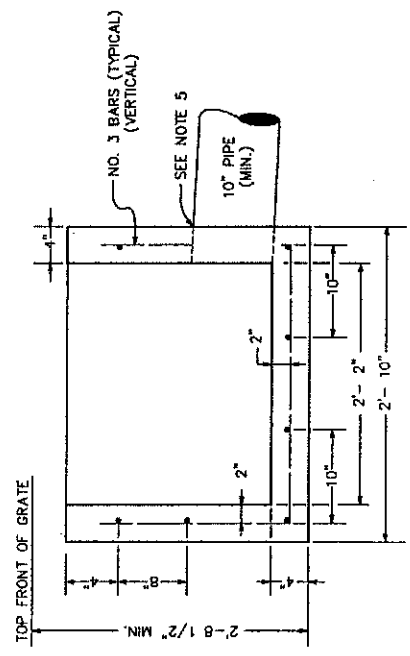
**SECTION A-A**



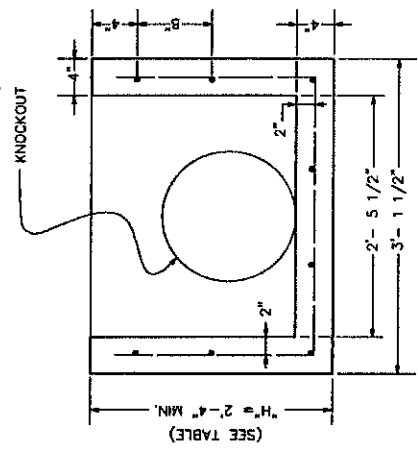
|         |                         |                  |                       |               |
|---------|-------------------------|------------------|-----------------------|---------------|
| 3/7/03  | REVISED SECTION A-A     | APPROVED:        | STANDARD              | BY: M. [Name] |
| 7/1/03  | REVISED SECTION B-B     | COUNTY ENGINEER: | CONCRETE INLET TYPE 1 | SHEET B-5     |
| 7/1/03  | REVISED NOTES 5, 6, & 7 | DATE: 7/1/03     |                       |               |
| NO DATE | BY: [Name]              |                  |                       | REPORT NUMBER |



PLAN



SECTION A-A



SECTION B-B

TABLE

| PIPE DIAMETER | "H"       |
|---------------|-----------|
| 10"           | 2'-4"     |
| 12"           | 2'-5 1/2" |
| 15"           | 2'-9"     |
| 18"           | 3'-0"     |

**GENERAL NOTES**

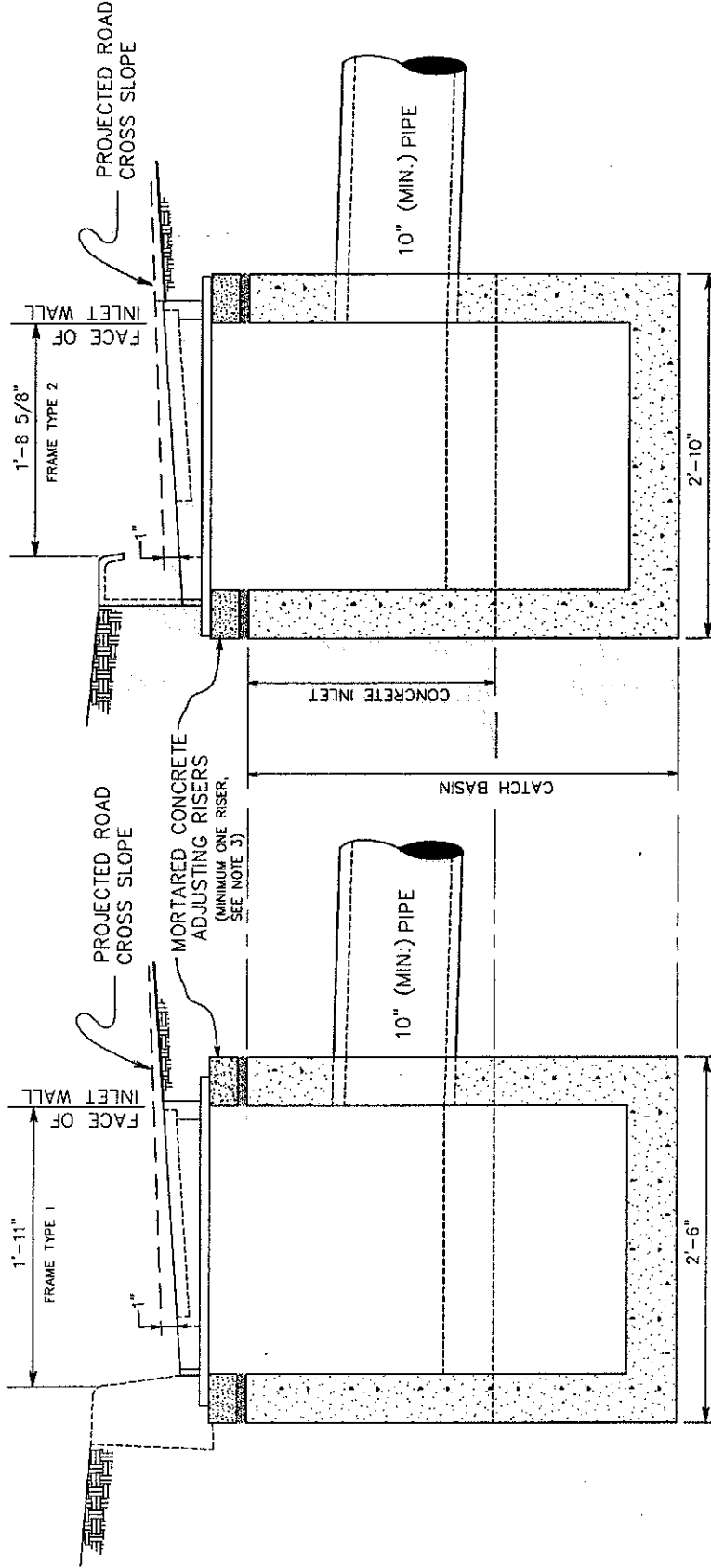
1. CONCRETE INLET SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (AASHTO M 199) & ASTM C 880 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE PROJECT SPECIAL PROVISIONS.
2. CONCRETE INLETS SHALL BE SET ON A LEVEL, COMPACTED FOUNDATION.
3. AS AN ACCEPTABLE ALTERNATE TO REBAR, WELDED WIRE FABRIC HAVING A MINIMUM AREA OF 0.12 SQUARE INCHES PER FOOT MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A 497 (AASHTO M 221). WIRE FABRIC SHALL NOT BE PLACED IN THE KNOCKOUTS.
4. WHEN PVC PIPE IS USED, A SAND COLLAR SHALL BE INSTALLED. SEE DETAIL ON SHT B-1
5. INLET PIPE SHALL BE GROUTED INTO CONCRETE INLET, WITH WATERPROOF NON-SHRINK GROUT.

*Only for clearance problems*

|                        |                             |   |  |                                   |                                 |
|------------------------|-----------------------------|---|--|-----------------------------------|---------------------------------|
| 2/1/03 BH              | REMOVED SECTION A-A & TABLE | SPOKANE COUNTY<br>DEPARTMENT OF PUBLIC WORKS<br>SPOKANE, WA 99260<br>(509) 477-3600 | APPROVED:<br>COUNTY ENGINEER<br>DATE: 4/1/03 | STANDARD<br>CONCRETE INLET TYPE 2 | SHEET<br>B-6<br>PART ONE OF TWO |
| 1/1/03 BH              | REVISION NOTES              |   |  |                                   |                                 |
| NO. DATE BY CKD, APPR. | REVISION                    |   |  |                                   |                                 |

**GENERAL NOTES**

1. THE TOP OF GRATE SHALL BE INSTALLED 1" LOWER THAN THE PROJECTED GUTTER GRADE. (ALSO SEE STD. PLAN B-18 GUTTER DEPRESSION DETAIL)
2. THE PRECAST CONCRETE INLET SHALL BE PLACED ON THE SAME GRADE AS THE CURB.
3. RISER TYPE 2 TO BE USED WITH CATCH BASIN.



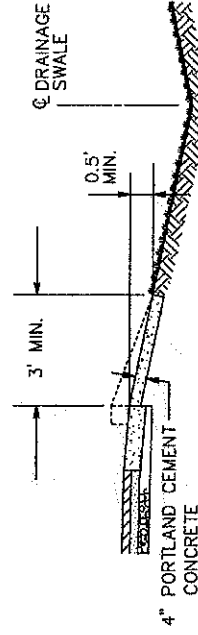
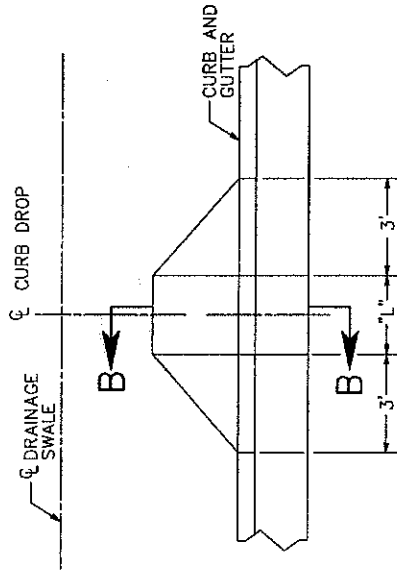
CATCH BASIN & INLET TYPE 1

CATCH BASIN & INLET TYPE 2

|   |      |        |       |         |                                       |
|---|------|--------|-------|---------|---------------------------------------|
| NO.   | DATE | BY     | CHKD. | T/APPR. | REVISION                              |
| 1   | 3/03 | SH/BJG | GSN   |         | REVISED NOTE NO. 1 & ADDED DIMENSIONS |
| SPOKANE COUNTY<br>DEPARTMENT OF PUBLIC WORKS<br>SPOKANE, WA. 99201 (509) 477-3800 |      |        |       |         |                                       |
| APPROVED: <i>[Signature]</i><br>COUNTY ENGINEER<br>DATE: 10/10/03                 |      |        |       |         |                                       |
| STANDARD<br>CATCH BASIN & INLET INSTALLATION                                      |      |        |       |         |                                       |
| STD-87206   |      |        |       |         | SHEET<br>B-7                          |
| PGT DATE 04/23/03   |      |        |       |         |                                       |

**GENERAL NOTES**

1. CURB INLET SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (AASHTO M 199) & ASTM C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE PROJECT SPECIAL PROVISIONS.
2. TOP SURFACE TO BE BROOM FINISHED.
3. ALL EXTERNAL EDGES NOT LABELED SHALL BE TROWELLED WITH 1/4" RADIUS EDGER.
4. DIMENSION "L" SHALL BE SHOWN ON THE PLANS.



**SECTION B-B**

**CURB INLET TYPE 1**



|   |      |        |     |                                    |                 |                   |       |
|---|------|--------|-----|------------------------------------|-----------------|-------------------|-------|
| 2 | 3/01 | BH/EG  | CSN | ADD DIM. TO SEC B-B                | APPROVED        | STANDARD          | SHEET |
| 1 | 3/98 | SP/KCM | LSH | ADD LINE FROM CURB TO SWALE        | COUNTY ENGINEER | CURB INLET TYPE 1 | B-8   |
|   |      |        |     | NO. DATE BY CHECKED APPR. REVISION | DATE: 5/12/02   |                   |       |

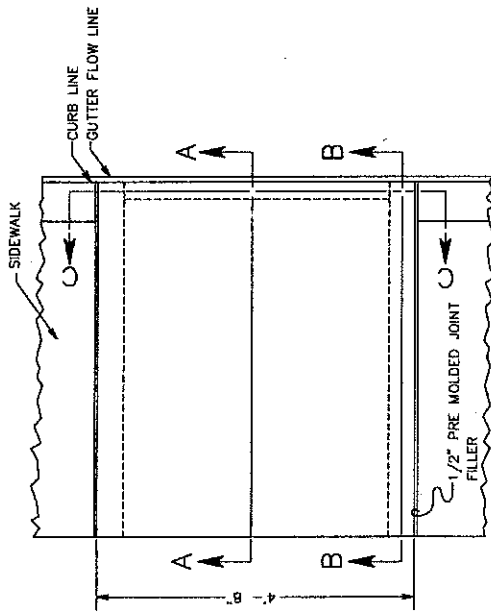
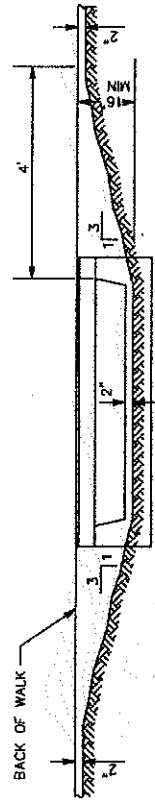
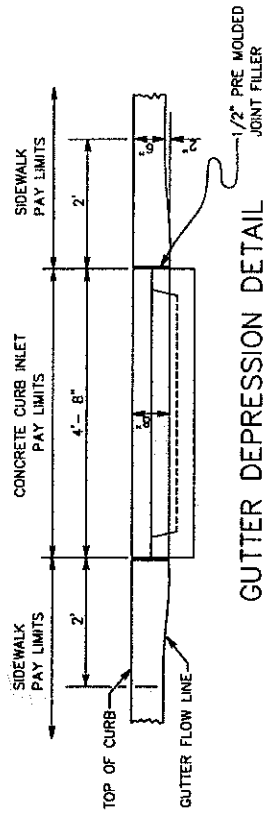
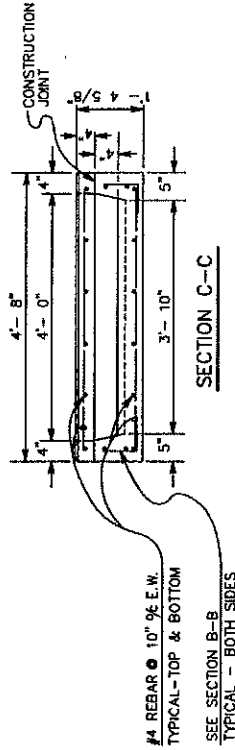
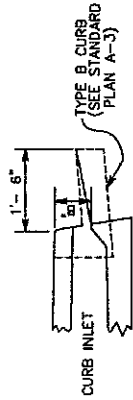
SPOKANE COUNTY  
DEPARTMENT OF PUBLIC WORKS  
SPOKANE, WA 99260  
(509) 477-3600

FOR DATE 04/27/02

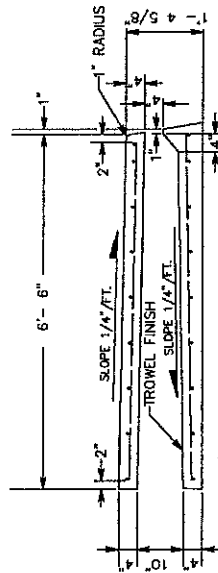


### GENERAL NOTES

1. CURB INLET SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (ASHTO M 199) & ASTM C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE PROJECT SPECIAL PROVISIONS.
2. TOP SURFACE TO BE BROOM FINISHED.
3. ALL EXTERNAL EDGES NOT LABELED SHALL BE TROWELLED WITH 1/4" RADIUS EDGER.



PLAN



SECTION A-A



SECTION B-B  
REBAR PLACEMENT

CURB INLET

OUTLET SWALE GRADING DETAIL

| NO. | DATE  | BY | CHKD. | APPR. | REVISION   |
|-----|-------|----|-------|-------|--|
| 4   | 10/02 | FP | BWG   | GSH   | TEXT REVISIONS                                   |
| 3   | 3/28  | CE | KGM   | JSH   | AMEND TEXT BACK OF WALK                          |
| 2   | 3/03  | BE | KGM   | JSH   | DIMENSION MINIMUM DEPTH OF SWALE/AMOUNT OF SLOPE |
| 1   | 10/04 | BE | KGM   | JSH   | DETAIL CURB INLET AS TWO PRICE UNIT              |

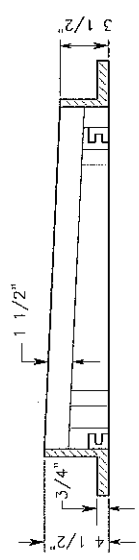


APPROVED: *[Signature]*  
 COUNTY ENGINEER  
 DATE: 10/02/02

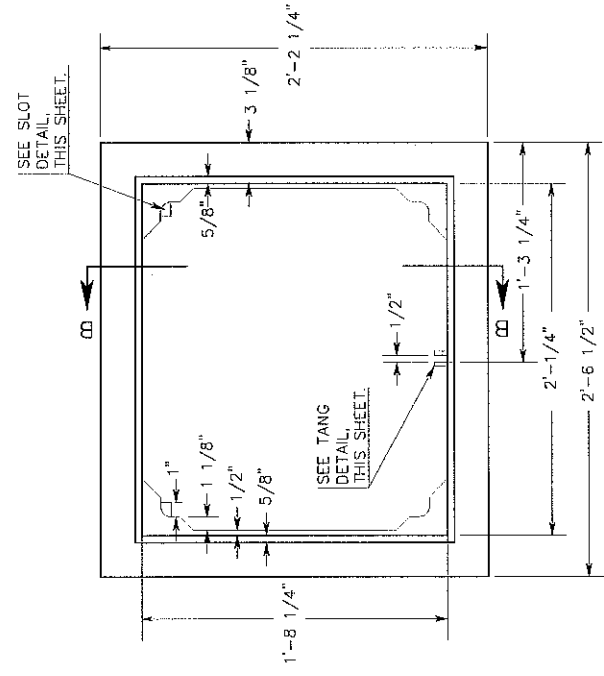
SPOKANE COUNTY  
 DEPARTMENT OF PUBLIC WORKS  
 SPOKANE, WA. 99203 (509) 477-3800

STANDARD  
 CURB INLET TYPE 2

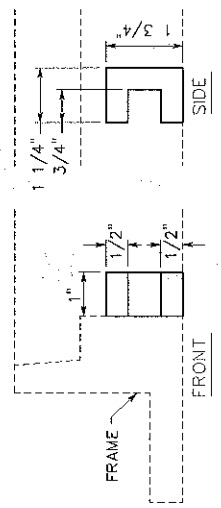
SP-10-100  
 SHEET  
 B-9



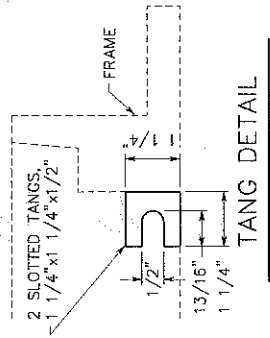
SECTION B-B



FRAME - TYPE 1



SLOT DETAIL



TANG DETAIL

GENERAL NOTES

1. FRAME SHALL BE GRAY IRON CONFORMING TO A.S.T.M. A48-O3 CLASS 35  
GRATE SHALL BE DUCTILE IRON CONFORMING TO A.S.T.M. A536-84, GRADE 80-55-06.
2. USE WITH CATCH BASIN AND CONCRETE INLET TYPE 1, SEE STD. PLAN SHEETS B-4,5 & 7.
3. FIT TOLERANCE SHALL BE 1/8" ±.
4. WELDING IS NOT PERMITTED.
5. GRATE GUARD REQUIRED. SEE SHEET B-17.
6. FOR GRATE DETAIL SEE STD. PLAN, SHEET B-12.



APPROVED  
COUNTY ENGINEER  
DATE: 12/18/09

SPOKANE COUNTY  
DEPARTMENT OF PUBLIC WORKS  
SPOKANE, WA. 99260 456-3600

| NO. | DATE  | BY | REVISION                            |
|-----|-------|----|-------------------------------------|
| 1   | 11/09 | PI | REVISED NOTE 1                      |
| 2   | 12/94 | UB | CORRECTED DIM. ON FRAME SECTION B-B |
| 3   |       |    | REVISED BY: JON TAPP                |

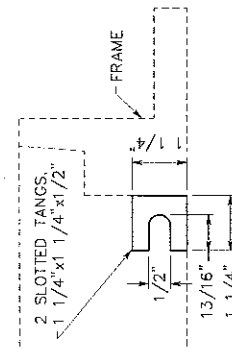
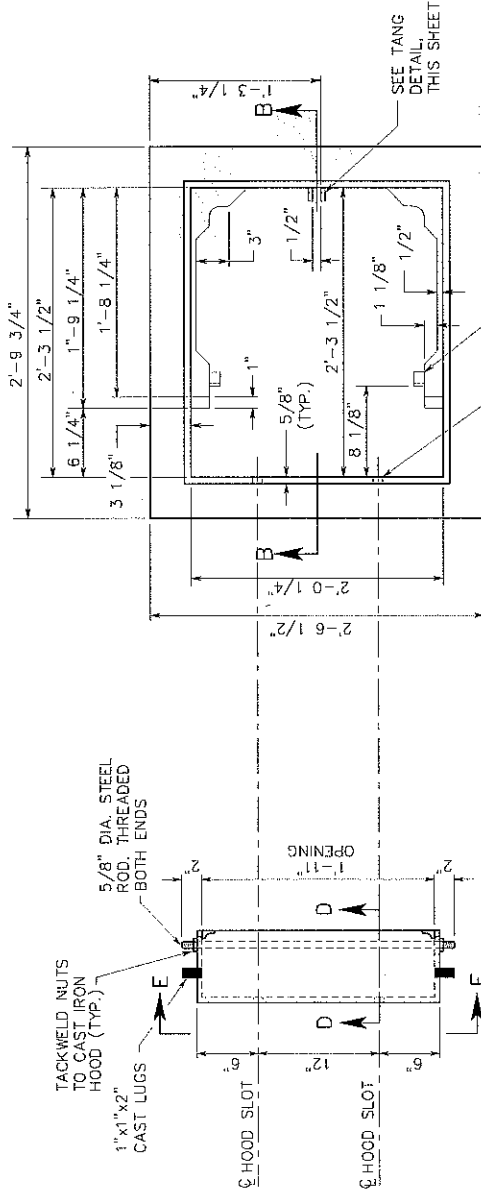
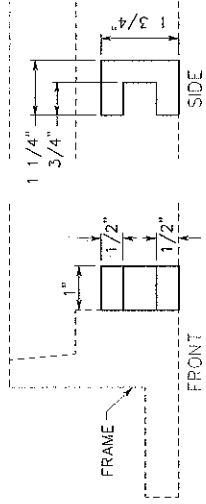
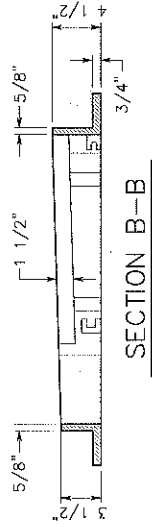
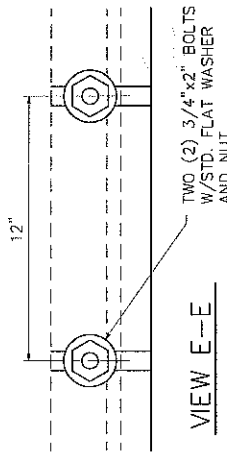
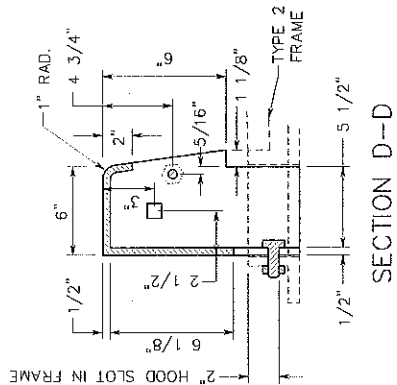
STANDARD  
METAL FRAME, TYPE 1

SHEET  
B-10

SP-800-200

## GENERAL NOTES

1. FRAME SHALL BE GRAY IRON CONFORMING TO A.S.T.M. A48-03 CLASS 35. THE GRATE SHALL BE DUCTILE IRON CONFORMING TO A.S.T.M. A536-84, GRADE 80-55-06.
2. BOLTS AND ROD SHALL CONFORM TO A.S.T.M. DESIGNATION A307, GRADE A.
3. USE WITH CATCH BASIN AND CONCRETE INLET, TYPE 2. SEE STD. PLAN SHEETS B-4, 6 & 7.
4. FIT TOLERANCE SHALL BE  $1/8"$  ±.
5. FOR GRATE DETAILS SEE STD. PLAN, SHEET B-13 OR B-14.
6. GRATE GUARD REQUIRED. SEE SHEET B-17.



SEE HOOD SLOT DETAIL, THIS SHEET. (TYP. 2 PLACES)

SEE CAST GUARD SLOT DETAIL, THIS SHEET. (TYP. 2 PLACES)

SEE TANG DETAIL, THIS SHEET

## HOOD

## FRAME - TYPE 2

STP-011 DWS

SPOKANE COUNTY  
DEPARTMENT OF PUBLIC WORKS  
SPOKANE, WA 99260 496-3600

APPROVED: COUNTY ENGINEER DATE: 1/28/10

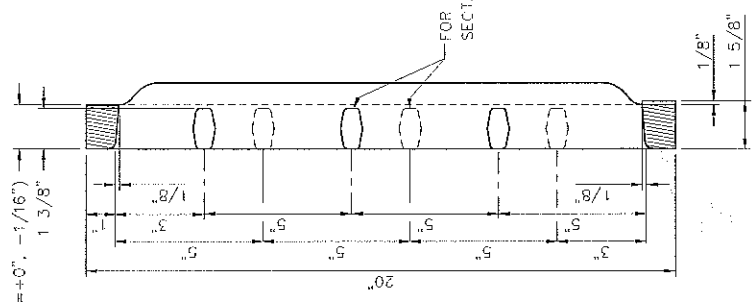
STANDARD METAL FRAME, TYPE 2

SHEET B-11

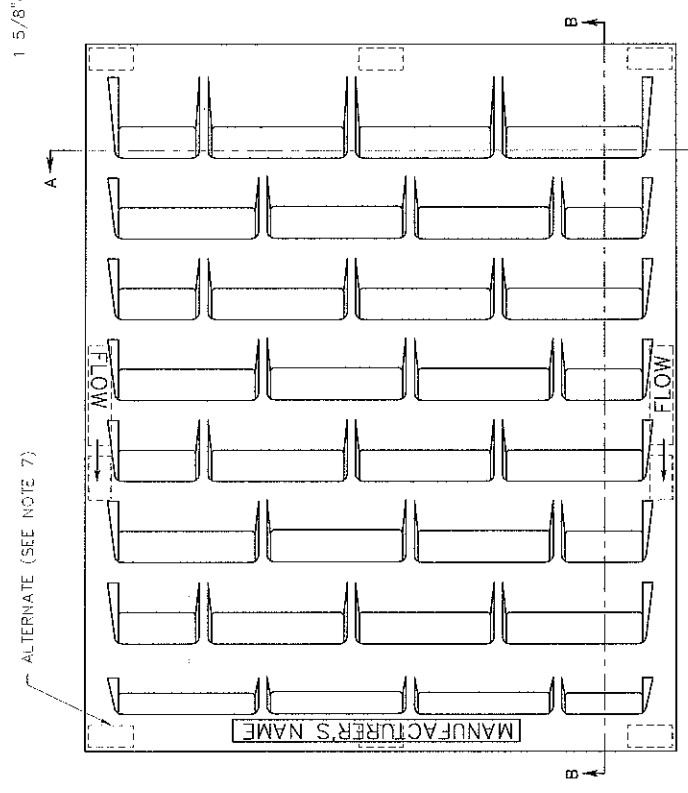
NO. DATE BY CKD APPR. REVISION

**GENERAL NOTES**

1. THE NAME OF THE MANUFACTURER AND DIRECTION OF FLOW SHALL BE EMBOSSED ON THE TOP SURFACE OF EACH GRATE. LETTERING TO BE RECESSED 1/16".
2. FRAME SHALL BE GRAY IRON CONFORMING TO A.S.T.M. A48-03 CLASS 35. THE GRATE SHALL BE DUCTILE IRON CONFORMING TO A.S.T.M. A536-84 GRADE 80-55-06.
3. DIMENSIONS SHALL HAVE ±1/16" TOLERANCE, EXCEPT AS NOTED.
4. EDGES SHALL HAVE 1/8" RADIUS, 1/8" CHAMFER OR COM-PLETE DEBURRING.
5. THE FRAME SHALL BE MANUFACTURED IN ACCORDANCE WITH STANDARD PLAN B-10.
6. WELDING IS NOT PERMITTED.
7. AS AN ALTERNATE, 8 PADS 1 1/2" X 3/4" X 1/8", INTEGRALLY CAST WITH THE GRATE, MAY BE USED.

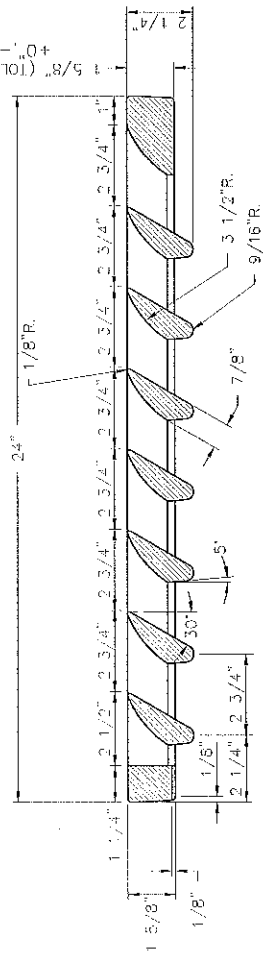


**SECTION A-A**

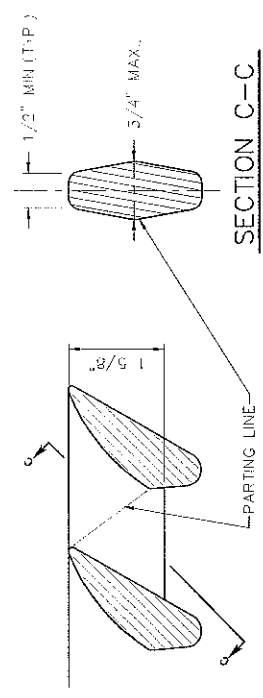


**TOP VIEW**

APPROXIMATE WEIGHT=101 LBS.



**SECTION B-B**



**SECTION C-C**

**VANE DETAIL**



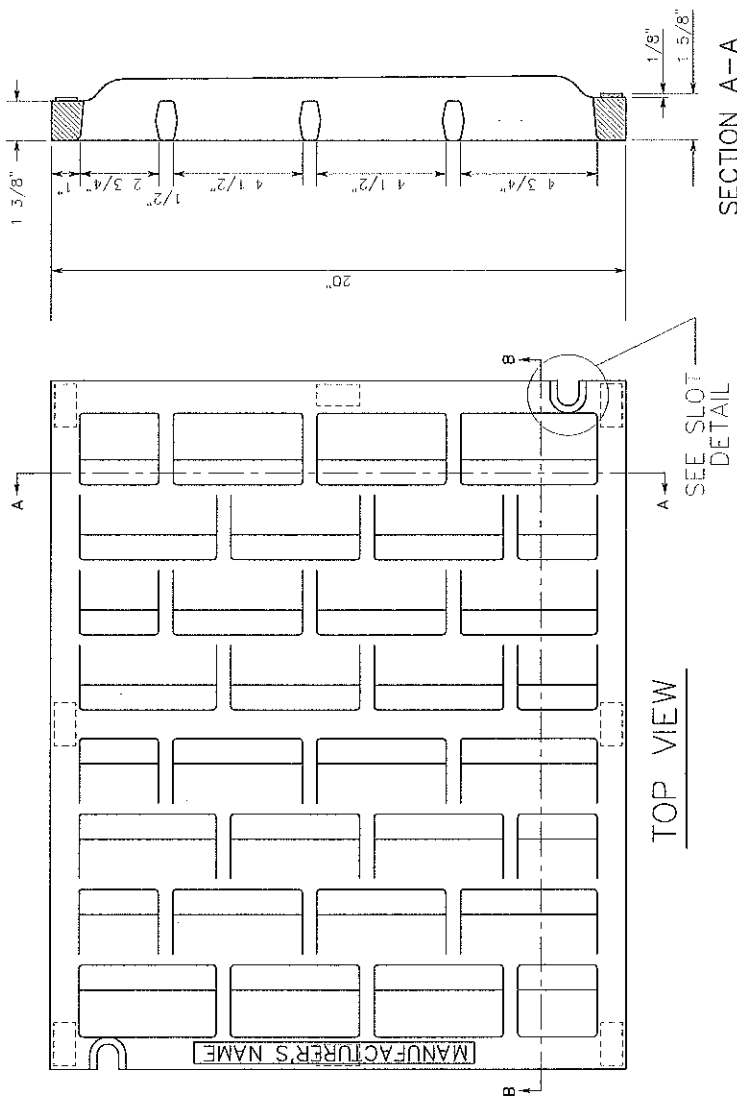
APPROVED: COUNTY ENGINEER DATE: 1/28/80

SPOKANE COUNTY DEPARTMENT OF PUBLIC WORKS SPOKANE, WA. 99250 456-3600

| NO. | DATE BY  | CD. | APPR. | REVISION       |
|-----|----------|-----|-------|----------------|
| 1   | 11/09/80 | RF  |       | REVISED NOTE 2 |

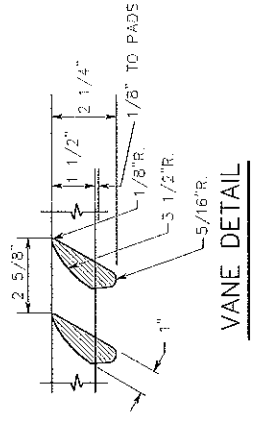
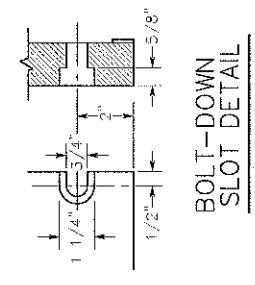
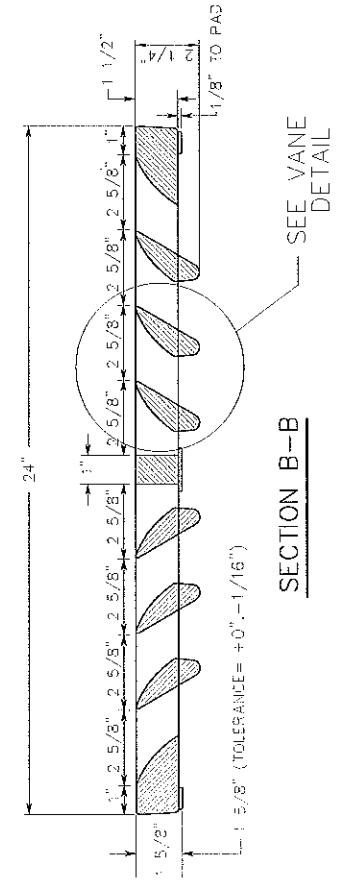
STANDARD METAL GRATE TYPE 1

SHEET B-12



**GENERAL NOTES**

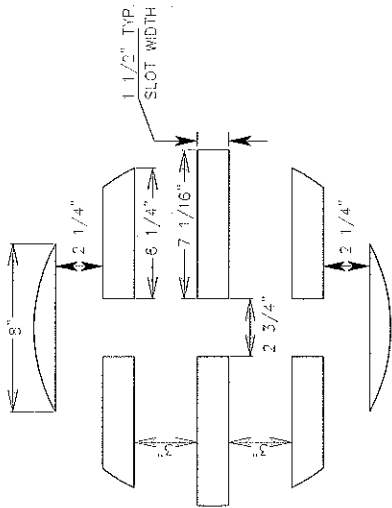
1. THE NAME OF THE MANUFACTURER AND THE DIRECTION OF FLOW SHALL BE EMBOSSED ON THE TOP SURFACE OF EACH GRATE. LETTERING TO BE RECESSED 1/16".
2. FRAME SHALL BE GRAY IRON CONFORMING TO A.S.T.M. A48-03, GRADE 35. THE GRATE SHALL BE DUCTILE IRON CONFORMING TO A.S.T.M. A536-84 GRADE 80-55-06.
3. DIMENSIONS SHALL HAVE  $\pm 1/16"$  TOLERANCE, EXCEPT AS NOTED.
4. EDGES SHALL HAVE 1/8" RADIUS, 1/8" CHAMFER OR COMPLETE DEBURRING.
5. THE FRAME SHALL BE MANUFACTURED IN ACCORDANCE WITH STANDARD PLAN B-11.
6. WELDING IS NOT PERMITTED.



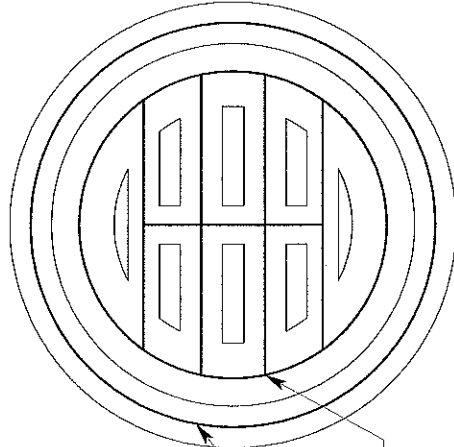
|                        |  |                            |  |                 |  |                    |  |
|------------------------|--|----------------------------|--|-----------------|--|--------------------|--|
| STP-B12 DMC            |  | SPOKANE COUNTY             |  | APPROVED:       |  | STANDARD           |  |
| SHEET                  |  | DEPARTMENT OF PUBLIC WORKS |  | COUNTY ENGINEER |  | METAL GRATE TYPE 3 |  |
| B-14                   |  | SPOKANE, WA. 99260         |  | DATE: 1/28/10   |  |                    |  |
| NO. DATE BY CKD. APPR. |  | REVISION                   |  | REVISED NOTE 2. |  |                    |  |
| 1 11/06 FF             |  |                            |  |                 |  |                    |  |



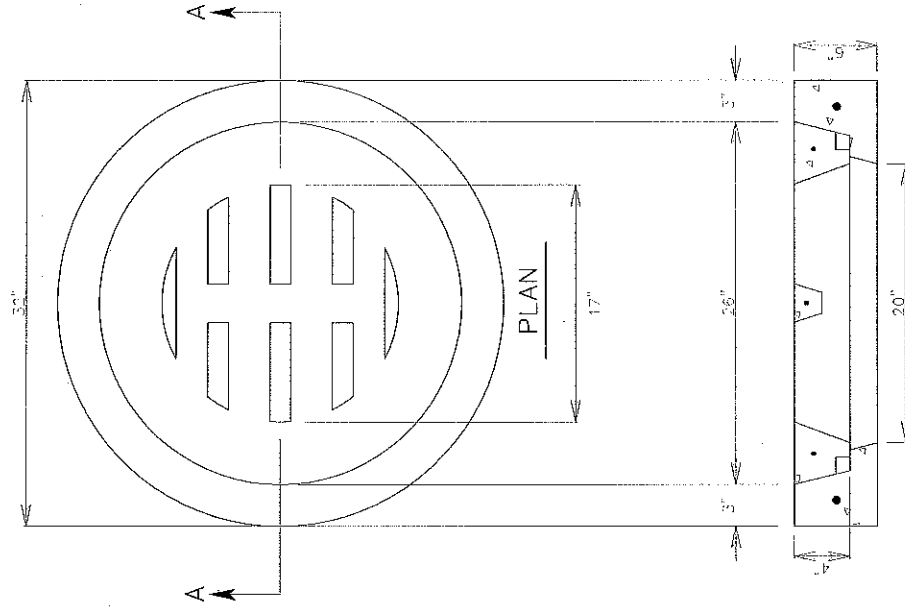




SLOT SPACING



REBAR PLACEMENT



SECTION A-A

GENERAL NOTES

1. LID SHALL ONLY BE USED IN GRASSED PERCOLATION AREAS ON PRIVATE PROPERTY.
2. 4500 P.S.I. AIR ENTRAINED CONCRETE SHALL BE USED.



APPROVED: J. H. KGM  
 COUNTY ENGINEER  
 DATE: 1/23/70

SPOKANE COUNTY  
 DEPARTMENT OF PUBLIC WORKS  
 SPOKANE, WA. 99260 456-3600

|        |    |                                     |
|--------|----|-------------------------------------|
| 2/1/09 | JP | REVISED DETAIL NUMBER B-16 DETEILED |
| 1/3/98 | CP | KGM JSH AMENDED NOTES               |
|        |    | SUBMITTED AND APPROVED REVISION     |

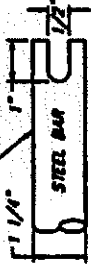
STANDARD  
 CONCRETE SLOTTED COVER W/RING

SHEET  
 B-16

**GENERAL NOTES**

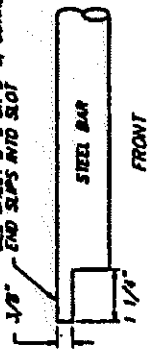
1. GRATE GUARD SHALL BE USED ON ALL TYPE 1 AND TYPE 2 FRAMES.
2. WELDS ON GRATE GUARD SHALL BE CONTINUOUS WELDS.
3. STEEL IN GRATE GUARD SHALL CONFORM WITH A513D M 183.
4. WELDS, WELDING PROCEDURES, AND WELDING MATERIALS SHALL CONFORM TO STANDARD SPECIFICATIONS FOR WELDING ISSUED BY THE AMERICAN WELDING SOCIETY.

SLIPS BETWEEN 3 SLOTTED TANGS. 3/8" x 1/4" PIN HELDS POSITION

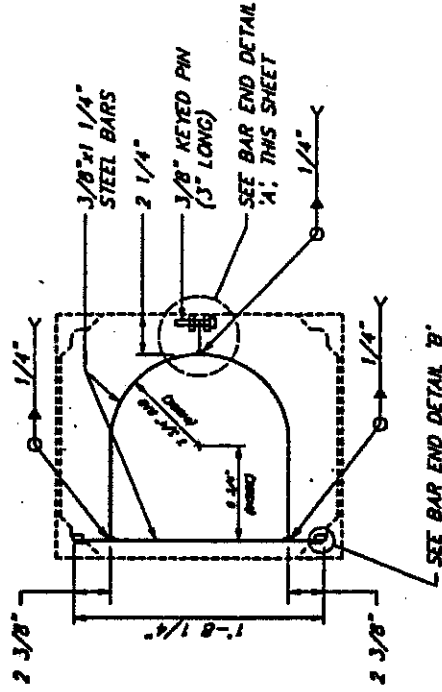


**BAR END DETAIL 'A'**

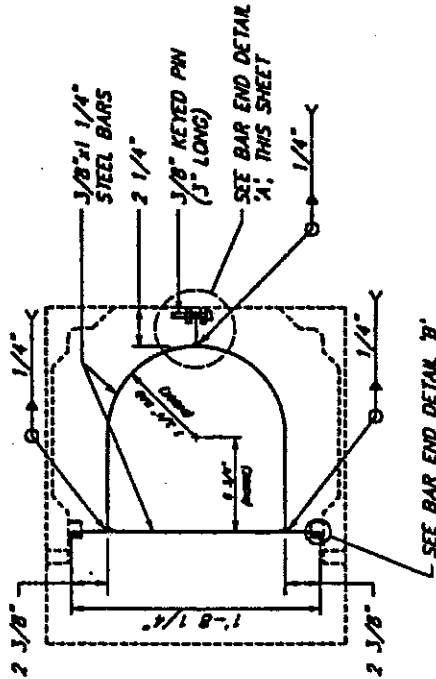
SEE SHEET B-8 ON B-8, GUARD SLOT DETAIL



**BAR END DETAIL 'B'**



**TYPE 1 FRAME**



**TYPE 2 FRAME**

**GRATE GUARD**



APPROVED  
COUNTY ENGINEER  
DATE: 5/2/52

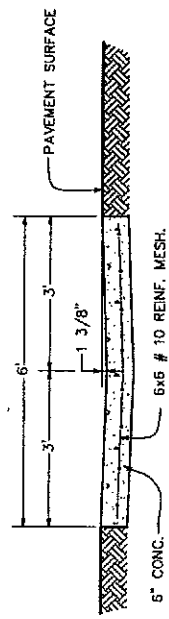
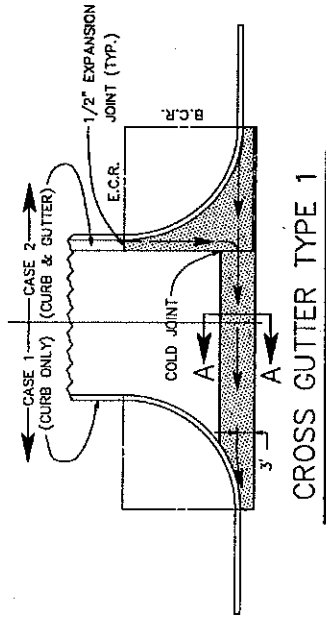
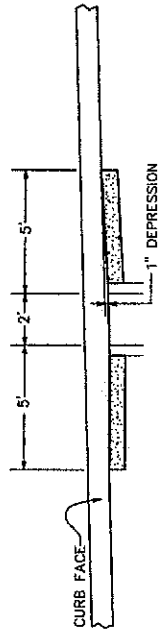
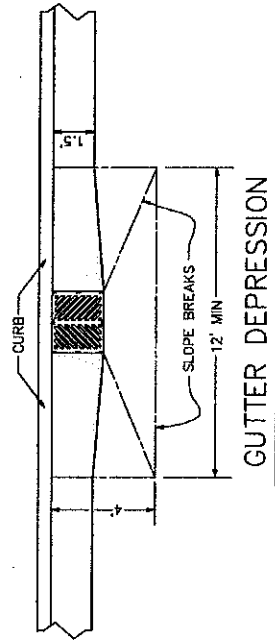
SPOKANE COUNTY  
DEPARTMENT OF PUBLIC WORKS  
SPOKANE, WA. 99208  
154-3425

|     |      |    |       |       |          |
|-----|------|----|-------|-------|----------|
| NO. | DATE | BY | CHKD. | APPR. | REVISION |
|     |      |    |       |       |          |

STANDARD  
GRATE GUARD

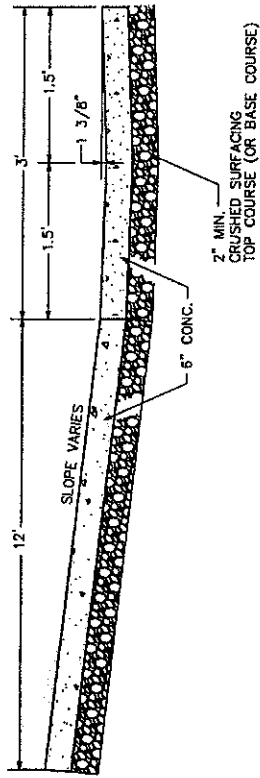
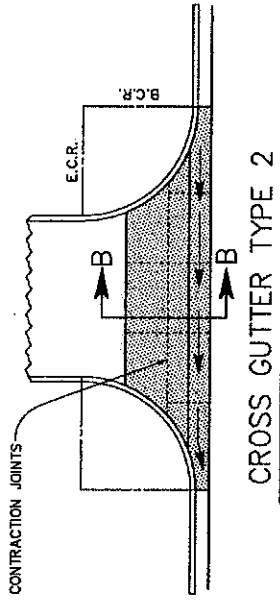
SHEET  
B-17





### GENERAL NOTES

1. THE GUTTER DEPRESSION SHALL BE CONSTRUCTED OF ASPHALT CONCRETE WHERE NO CONCRETE GUTTER IS SPECIFIED. A.C. THICKNESS SHALL BE THE SAME AS SPECIFIED FOR THE ROAD.
2. PORTLAND CEMENT CONCRETE SHALL BE CLASS 3000.



### SECTION A-A

### SECTION B-B

|     |      |       |       |                            |
|-----|------|-------|-------|----------------------------|
| 2   | 5/03 | BLBJS | CSN   | REVISED SECTION B-B        |
| 1   | 3/98 | CP    | KGM   | JSH SHOW APRON SECTION B-B |
| NO. | DATE | BY    | CHKD. | APPR.                      |

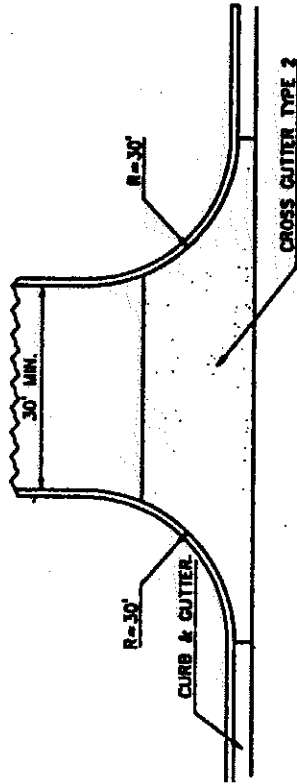
SPOKANE COUNTY  
DEPARTMENT OF PUBLIC WORKS  
SPOKANE, WA. 99260  
(509) 477-3600

APPROVED: [Signature]  
COUNTY ENGINEER  
DATE: 4/15/03  
STANDARD  
CONCRETE GUTTERS

SHEET  
B-18  
POST DATE 07/25/06

**GENERAL NOTES**

1. THE GUTTER DEPRESSION SHALL BE CONSTRUCTED OF ASPHALT CONCRETE WHERE NO CONCRETE GUTTER IS SPECIFIED. A.C. THICKNESS SHALL BE THE SAME AS SPECIFIED FOR THE ROAD.
2. PORTLAND CEMENT CONCRETE SHALL BE CLASS 3000.



**HIGH VOLUME DRIVEWAY APPROACH**



APPROVED  
 COUNTY ENGINEER  
 DATE: 5-25-85

SPOKANE COUNTY  
 DEPARTMENT OF PUBLIC WORKS  
 SPOKANE, WA 99208

REVISION

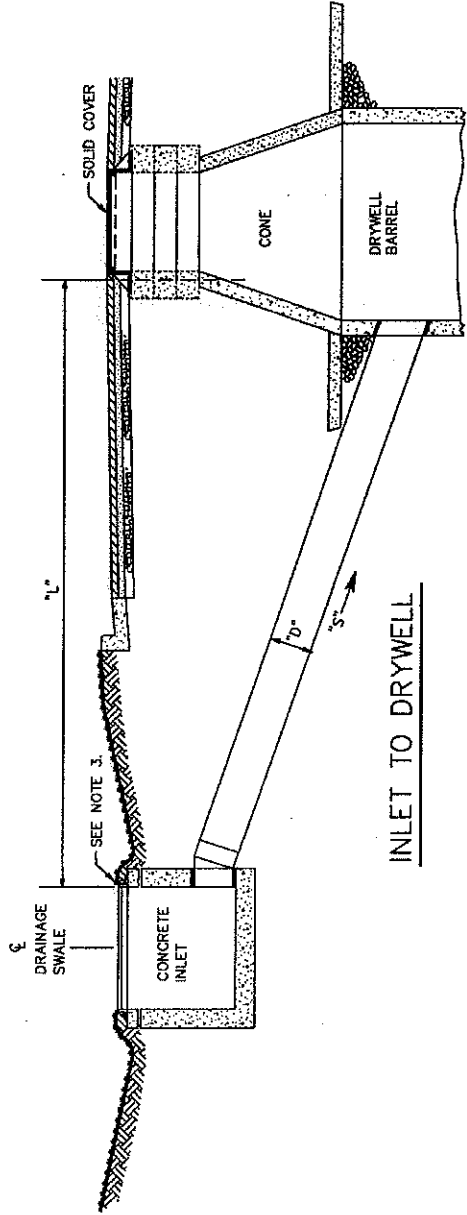
NO. DATE BY (CROSS-LAPPER)

STANDARD  
 HIGH VOLUME DRIVEWAY APPROACH

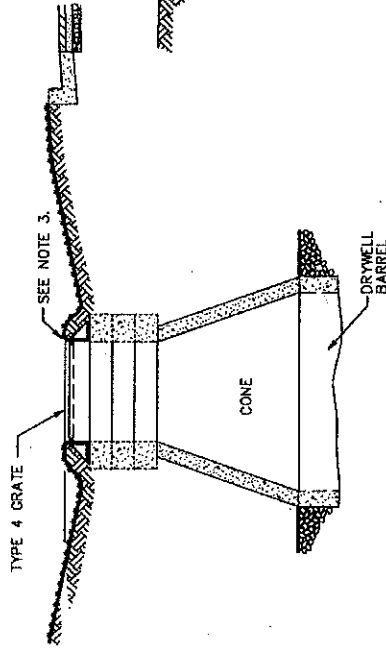
SHEET  
 8-18A

### GENERAL NOTES

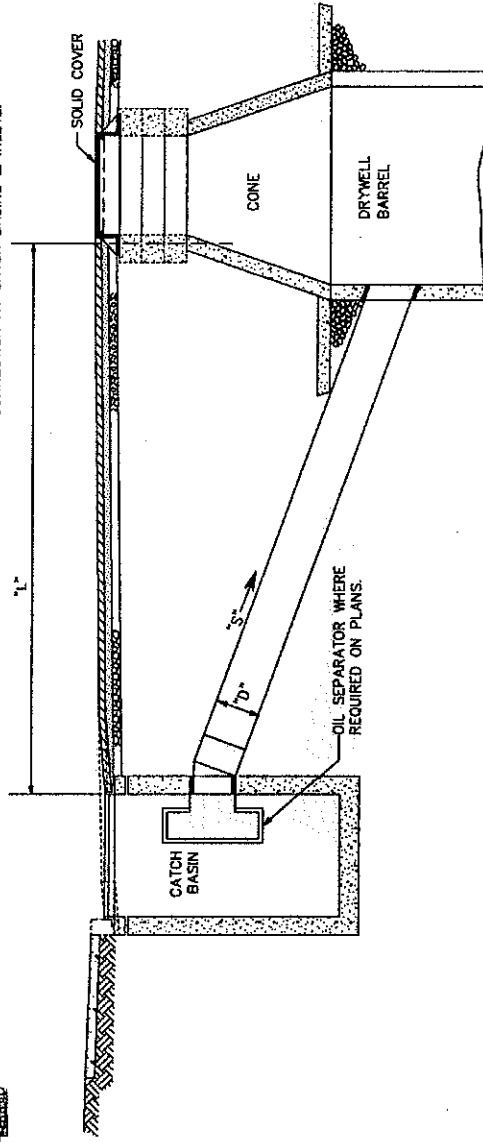
- WHERE SPECIFIED ON THE PLANS, A SOLID COVER SHALL BE USED IN LIEU OF A GRATE.
- "D" SHALL BE A MINIMUM OF 10". "L", AND "D" SHALL BE SHOWN ON PLANS.  
"S" SHALL BE 2% MIN. UNLESS OTHERWISE SHOWN ON THE PLANS
- INLET SHALL BE RAISED 6" ABOVE THE FLOWLINE OF THE DRAINAGE SWALE UNLESS OTHERWISE SHOWN ON THE PLANS.
- DRYWELLS PLACED IN ROADWAY SHALL BE PLACED IN CENTER ON TRAFFIC LANE, A MINIMUM OF 15' FROM CATCH BASIN OR INLET.
- WHEN PVC PIPE IS USED, A PVC ADAPTER SHALL BE INSTALLED.
- PVC ADAPTERS SHALL BE GROUTED INTO INLETS, CATCH BASINS & DRYWELLS.
- PVC PIPE INSTALLED UNDER ROADWAY SHALL HAVE 2' MINIMUM COVER.
- ELBOWS UP TO 45° MAY BE USED FOR CONNECTION AT CATCH BASINS & INLETS.



INLET TO DRYWELL



SWALE DRYWELL INSTALLATION

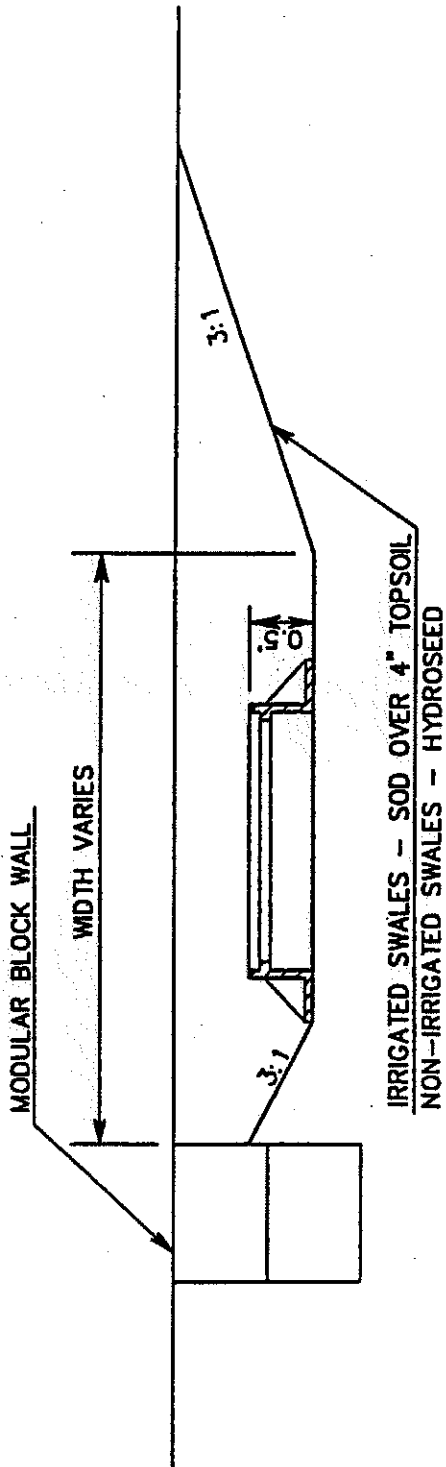


CATCH BASIN TO DRYWELL



|                        |   |                 |                     |                    |
|------------------------|---|-----------------|---------------------|--------------------|
| 3 8/03 BKH             | REVISED NOTE # 2                            | APPROVED:       | STANDARD            | SP-300/310         |
| 2 10/04 PFG            | GSK REVISED SWALE DRYWELL INSTALLATION DET. | COUNTY ENGINEER | INLET INSTALLATIONS | SHEET              |
| 1 3/98 CP/KGM          | JSH AMENDED GRATE TYPE                      | DATE: 8/2/03    |                     | B-19               |
| NO. DATE BY/CHK./APPR. | REVISION                                    |                 |                     | POST DATE 04/27/00 |

SPOKANE COUNTY  
DEPARTMENT OF PUBLIC WORKS  
SPOKANE, WA 99260 (509) 477-3600



SWALE SECTION WITH MODULAR BLOCK WALL

|   |    |   |      |   |  |               |  |
|---|----|---|------|---|--|---------------|--|
| SPOKANE COUNTY<br>DEPARTMENT OF PUBLIC WORKS<br>SPOKANE, WA 99208 |    | APPROVED:<br>COUNTY ENGINEER<br>DATE: 7/22/83 |      | STANDARD<br>SWALE WITH MODULAR BLOCK WALL |  | SHEET<br>B-20 |  |
| SOLIDAY   | BY | CSO   | JAPP | REVISION                                  |  |               |  |

*[Signature]*

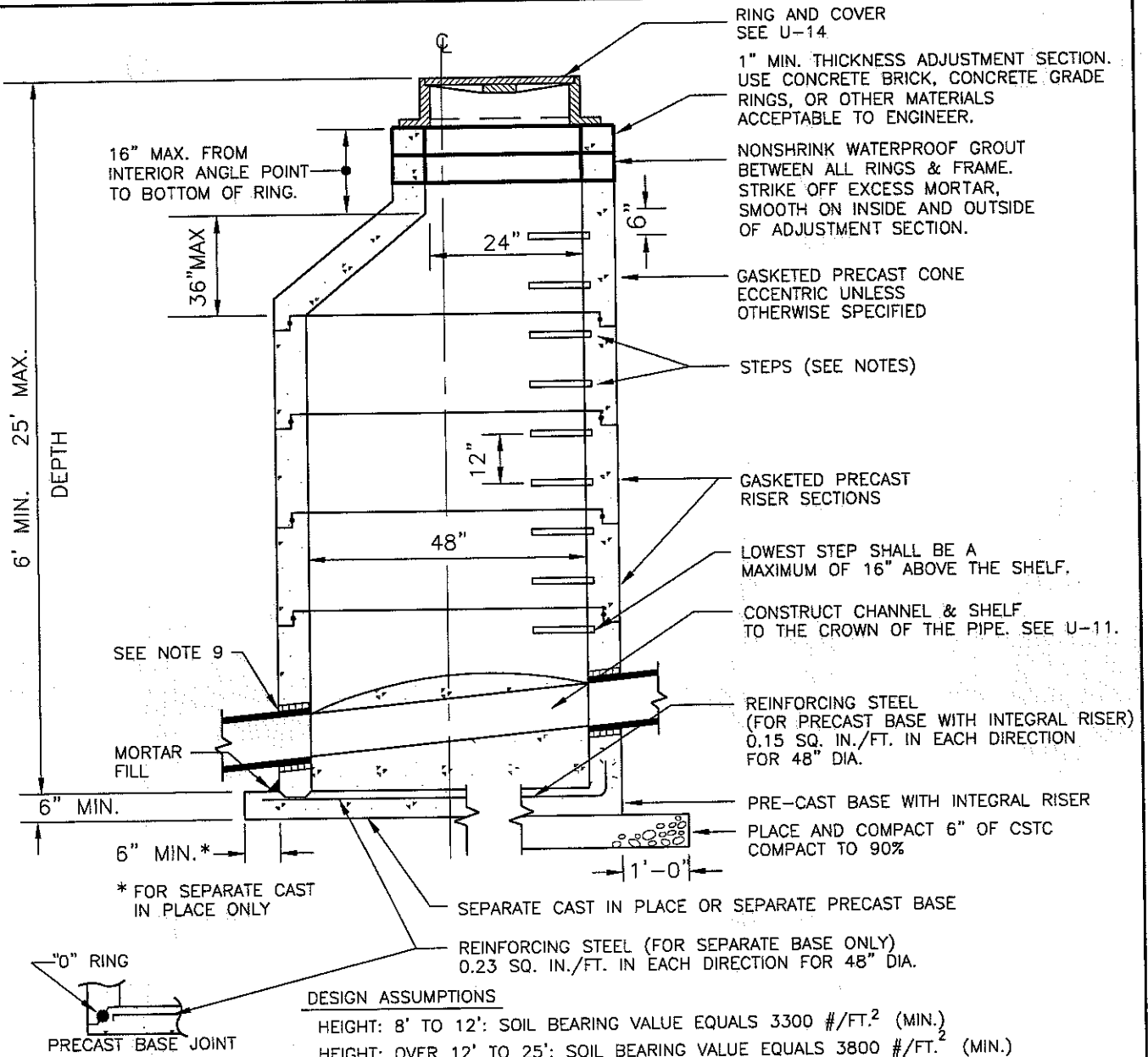
| MANHOLE TYPE | MIN. DEPTH TO I.E. | MAX. DEPTH | STEPS | MAX. PIPE SIZE (I.D.)* | SHEET NO. |
|--------------|--------------------|------------|-------|------------------------|-----------|
| I-48         | 6'                 | 25'        | YES   | 21"                    | U-2       |
| I-60         | 9'                 | 25'        | YES   | 36"                    | U-3       |
| II-72        | 9'                 | 25'        | YES   | 42"                    | U-4       |
| II-96        | 12'                | 25'        | YES   | 60"                    | U-4       |
| III-48**     | 4'                 | 6'         | NO    | 21"                    | U-5       |
| III-60       | 6'                 | 9'         | YES   | 36"                    | U-6       |
| III-72       | 7'                 | 9'         | YES   | 42"                    | U-6       |
| III-96       | 8'                 | 12'        | YES   | 60"                    | U-6       |
| IV           | 8'                 | 25'        | YES   | 42" MIN. PIPE SIZE     | U-7       |

\*MAX. PIPE SIZE MAY BE LIMITED BY PIPE CONFIGURATION.  
 \*\*MANHOLES LESS THAN 6' IN DEPTH MUST BE APPROVED BY SPOKANE COUNTY SEWER DESIGN MANAGER



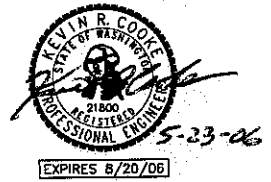
STANDARD U-9

|   |                                    |              |      |       |          |
|---|------------------------------------|--------------|------|-------|----------|
| APPROVED: <u>AKR</u><br>UTILITIES DIRECTOR<br>DATE: <u>11/15/99</u>         | STANDARD<br>MANHOLE TYPES & DEPTHS | SHEET<br>U-1 |      |       |          |
| SPOKANE COUNTY<br>DEPARTMENT OF PUBLIC WORKS<br>SPOKANE, WA. (509) 477-3604 |                                    |              |      |       |          |
| NO.   | DATE                               | BY           | CRD. | APPR. | REVISION |
|   |                                    |              |      |       |          |



**NOTES**

1. MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M-199 (ASTM C 478) UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE STANDARD SPECIFICATIONS, AND IN ACCORDANCE WITH CURRENT WSDOT/APWA STANDARD SPECIFICATIONS
2. ALL REINFORCED CAST IN PLACE CONCRETE SHALL BE CLASS 4000. NON-REINFORCED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 3000. ALL PRECAST CONCRETE SHALL BE CLASS 4000.
3. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM.
4. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS MANHOLE WALL THICKNESS. MAXIMUM PIPE SIZE IS 21" FOR 48" MANHOLE. (MAX. PIPE SIZE MAY BE LIMITED BY PIPE CONFIGURATION.) MINIMUM DISTANCE BETWEEN HOLES IS 8".
5. ALL BASE REINFORCING SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MINIMUM CLEARANCE.
6. NO STEPS SHALL BE PLACED IN THE ADJUSTMENT SECTION.
7. ALL MANHOLES SHALL HAVE STEPS
8. THE MANHOLE OPENING SHALL BE ORIENTED DIRECTLY OVER THE INVERT OF THE LARGEST INLET PIPE.
9. USE A-LOK, KOR-N-SEAL, INSERTA TEE, DURASEAL III, OR APPROVED EQUAL MANHOLE ADAPTORS.



**DESIGN ASSUMPTIONS**

HEIGHT: 8' TO 12': SOIL BEARING VALUE EQUALS 3300 #/FT.<sup>2</sup> (MIN.)  
 HEIGHT: OVER 12' TO 25': SOIL BEARING VALUE EQUALS 3800 #/FT.<sup>2</sup> (MIN.)

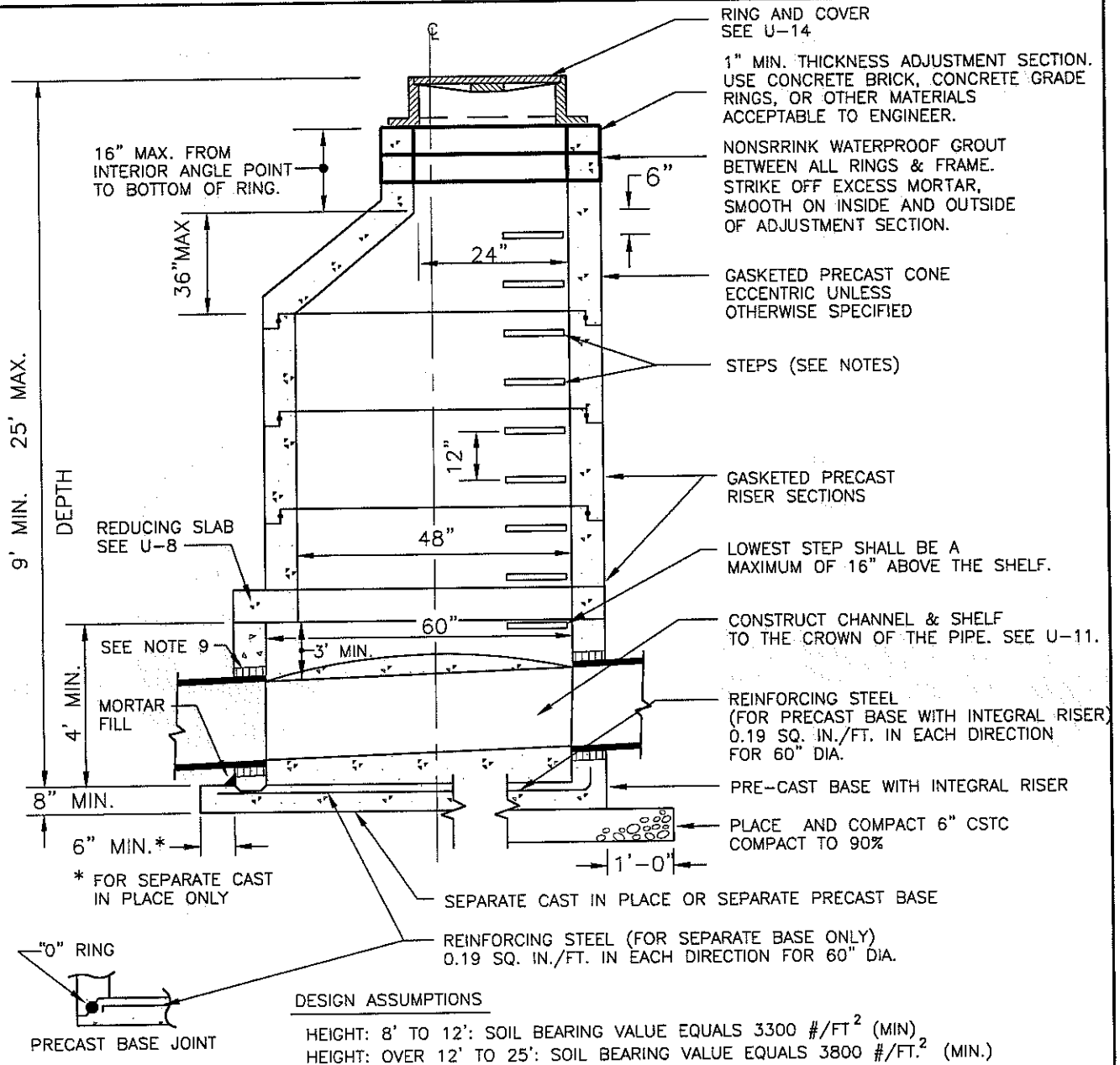
APPROVED: *Blaine Rawle*  
 UTILITIES DIRECTOR  
 DATE: 5/23/2006

STANDARD  
 MANHOLE TYPE I-48

SHEET  
 U-2

| NO. | DATE | BY | CKD. | APPR. | REVISION                  |
|-----|------|----|------|-------|---------------------------|
| 1   | 4/06 | GG | KC   | NBR   | CHANGE ADJUSTMENT SECTION |

SPOKANE COUNTY  
 DEPARTMENT OF PUBLIC WORKS  
 SPOKANE, WA. (509) 477-3604



**NOTES**

1. MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M-199 (ASTM C 478) UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE STANDARD SPECIFICATIONS, AND IN ACCORDANCE WITH CURRENT WSDOT/APWA STANDARD SPECIFICATIONS
2. ALL REINFORCED CAST IN PLACE CONCRETE SHALL BE CLASS 4000. NON-REINFORCED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 3000. ALL PRECAST CONCRETE SHALL BE CLASS 4000.
3. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM.
4. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS MANHOLE WALL THICKNESS. MAXIMUM PIPE SIZE IS 36" FOR 60" MANHOLE. (MAX. PIPE SIZE MAY BE LIMITED BY PIPE CONFIGURATION.) MINIMUM DISTANCE BETWEEN HOLES IS 8".
5. ALL BASE REINFORCING SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MINIMUM CLEARANCE.
6. NO STEPS SHALL BE PLACED IN THE ADJUSTMENT SECTION.
7. ALL MANHOLES SHALL HAVE STEPS
8. THE MANHOLE OPENING SHALL BE ORIENTED DIRECTLY OVER THE INVERT OF THE LARGEST INLET PIPE.
9. USE A-LOK, KOR-N-SEAL, INSERTA TEE, DURA-SEAL III, OR APPROVED EQUAL MANHOLE ADAPTOR



EXPIRES 8/20/06

STANDARD U-03

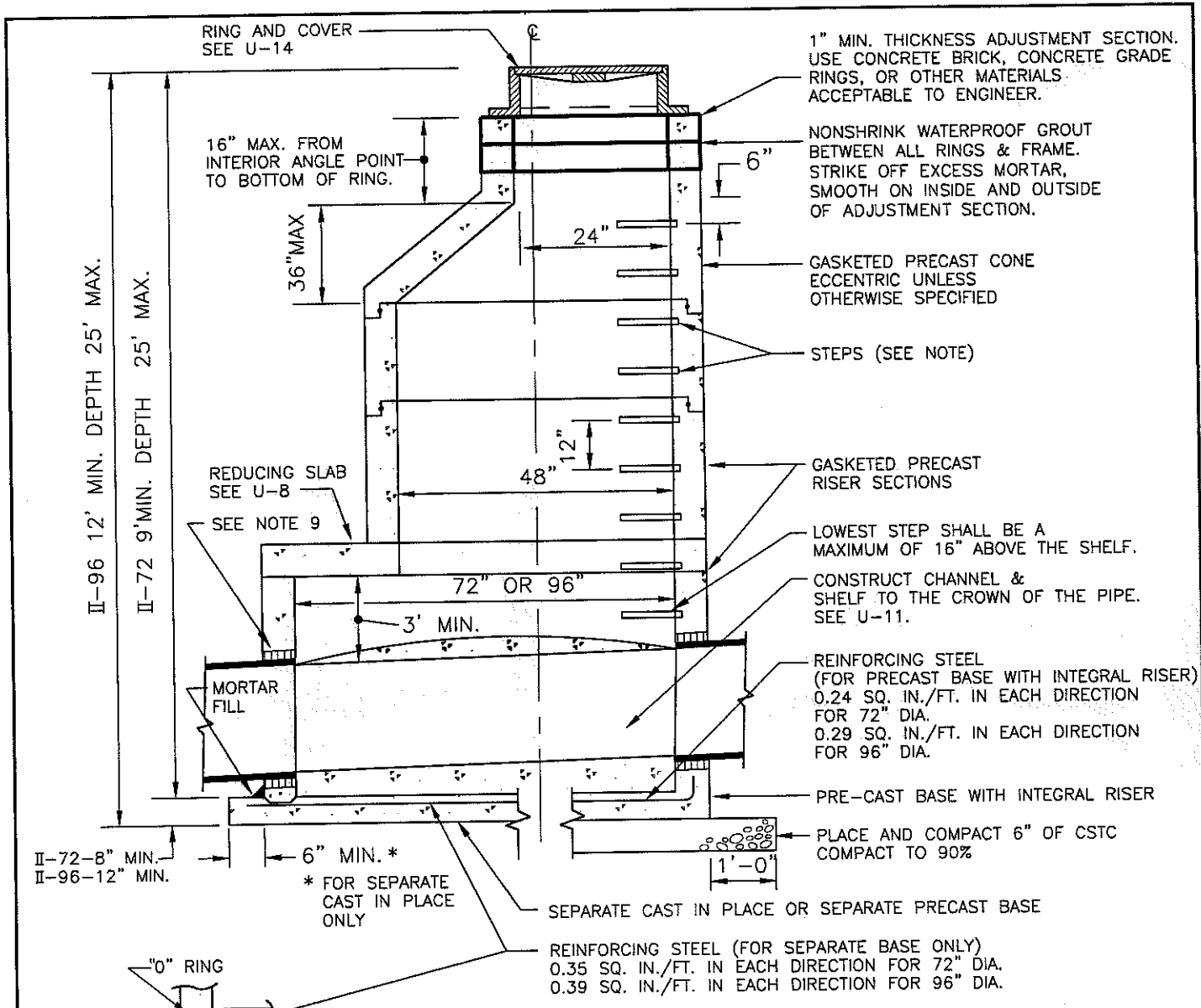
APPROVED: *Bruce Rawls*  
 UTILITIES DIRECTOR  
 DATE: 5/23/2006

STANDARD  
 MANHOLE TYPE 1-60

SHEET  
 U-3

SPOKANE COUNTY  
 DEPARTMENT OF PUBLIC WORKS  
 SPOKANE, WA. (509) 477-3604

| NO. | DATE | BY | CKD. | APPR. | REVISION                              |
|-----|------|----|------|-------|---------------------------------------|
| 1   | 4/06 | GG | KRC  | NBR   | CHANGE ADJUSTMENT SECTION             |
| 1   | 4/06 | GG | KRC  | NBR   | ADDED MIN. TOLERANCE ON BOTTOM BARREL |



DESIGN ASSUMPTIONS  
 HEIGHT: 8' TO 12': SOIL BEARING VALUE EQUALS 3300 #/FT<sup>2</sup> (MIN.)  
 HEIGHT: OVER 12' TO 25': SOIL BEARING VALUE EQUALS 3800 #/FT<sup>2</sup> (MIN.)

- NOTES
1. MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M-199 (ASTM C 478) UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE STANDARD SPECIFICATIONS, AND IN ACCORDANCE WITH CURRENT WSDOT/APWA STANDARD SPECIFICATIONS.
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  3. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM.
  4. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS MANHOLE WALL THICKNESS. MAXIMUM PIPE SIZE IS 42" FOR 72" MANHOLE, 60" FOR 96" MANHOLE. (MAX. PIPE SIZE MAY BE LIMITED BY PIPE CONFIGURATION.) MINIMUM DISTANCE BETWEEN HOLES IS 8".
  5. ALL BASE REINFORCING SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MINIMUM CLEARANCE.
  6. NO STEPS SHALL BE PLACED IN THE ADJUSTMENT SECTION.
  7. ALL MANHOLES SHALL HAVE STEPS
  8. THE MANHOLE OPENING SHALL BE ORIENTED DIRECTLY OVER THE INVERT OF THE LARGEST INLET PIPE.
  9. USE A-LOK, KOR-N-SEAL, INSERTA TEE, DURA-SEAL III, OR APPROVED EQUAL MANHOLE ADAPTOR.



APPROVED: *Bruce Rawls*  
 UTILITIES DIRECTOR  
 DATE: 5/23/2006

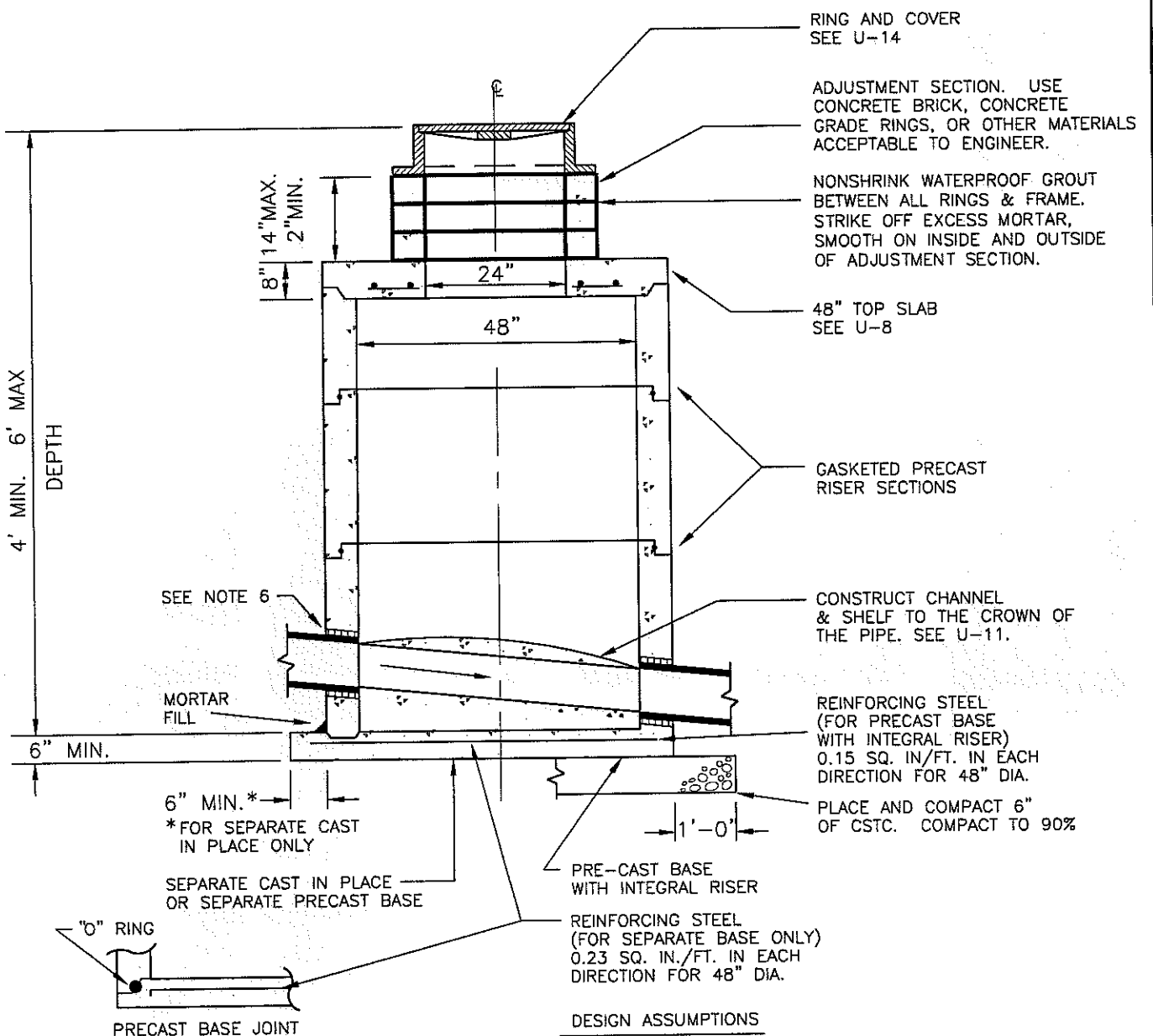
STANDARD  
 MANHOLE TYPE II-72, II-96

SHEET  
 U-4

SPOKANE COUNTY  
 DEPARTMENT OF PUBLIC WORKS  
 SPOKANE, WA. (509) 477-3604

| NO. | DATE | BY | CKD. | APPR. | REVISION                  |
|-----|------|----|------|-------|---------------------------|
| 1   | 4/06 | GG | KRC  | NBR   | CHANGE ADJUSTMENT SECTION |





**NOTES**

1. MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M-199 (ASTM C 478) UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE STANDARD SPECIFICATIONS, AND IN ACCORDANCE WITH CURRENT WSDOT/APWA STANDARD SPECIFICATIONS.
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5. ALL BASE REINFORCING SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MINIMUM CLEARANCE.
6. USE A-LOK, KOR-N-SEAL, INSERTA TEE, DURA-SEAL III, OR APPROVED EQUAL MANHOLE ADAPTOR.

**DESIGN ASSUMPTIONS**

5'-4" TO 8': SOIL BEARING VALUE EQUALS 3300 #/FT (MIN)



EXPIRES 8/20/06

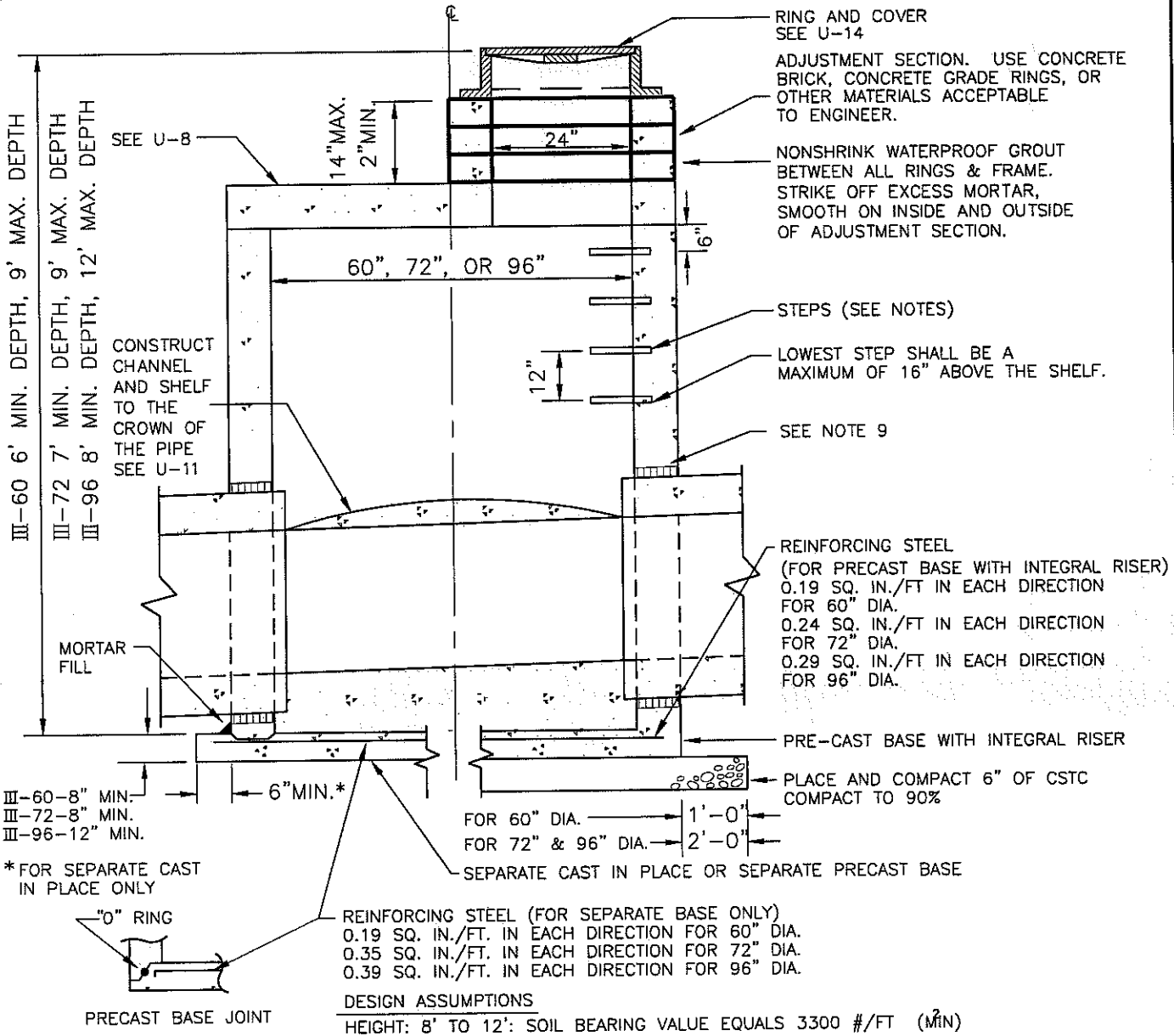
STANDARD U-05

APPROVED: *Bruce Rawls*  
UTILITIES DIRECTOR  
DATE: 5/23/2006

STANDARD  
MANHOLE TYPE III-48

SHEET  
U-5

|     |      |    |      |       |   |  |
|-----|------|----|------|-------|---|--|
|     |      |    |      |       | SPOKANE COUNTY<br>DEPARTMENT OF PUBLIC WORKS<br>SPOKANE, WA. (509) 477-3604 |  |
| 1   | 4/06 | GG | KRC  | NBR   | CHANGE ADJUSTMENT SECTION   |  |
| NO. | DATE | BY | CKD. | APPR. | REVISION  |  |



**NOTES**

- MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M-199 (ASTM C 478) UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE STANDARD SPECIFICATIONS, AND IN ACCORDANCE WITH CURRENT WSDOT/APWA STANDARD SPECIFICATIONS.
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- ALL BASE REINFORCING SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MINIMUM CLEARANCE.
- ALL MANHOLES SHALL HAVE STEPS
- NO STEPS SHALL BE PLACED IN THE ADJUSTMENT RING
- THE MANHOLE OPENING SHALL BE ORIENTED DIRECTLY OVER THE INVERT OF THE LARGEST INLET PIPE.
- USE A-LOK, KOR-N-SEAL, INSERTA TEE, DURA-SEAL, OR APPROVED EQUAL MANHOLE ADAPTOR.



5-23-06

EXPIRES 8/20/08 STANDARD U-06

APPROVED: *Bruce Rawls*  
 UTILITIES DIRECTOR  
 DATE: 5/23/2006

STANDARD  
 MANHOLE TYPE III-60, III-72, III-96

SHEET  
 U-6

SPOKANE COUNTY  
 DEPARTMENT OF PUBLIC WORKS  
 SPOKANE, WA. (509) 477-3604

| NO. | DATE | BY | CKD. | APPR. | REVISION                  |
|-----|------|----|------|-------|---------------------------|
| 1   | 4/06 | GG | KRC  | NBR   | CHANGE ADJUSTMENT SECTION |

16" MAX. FROM INTERIOR ANGLE POINT TO BOTTOM OF RING.

36" MAX

12"

48"

VARIES (MIN. DIA 42")

MORTAR FILLET (TYP.)

RING AND COVER SEE U-14

1" MIN. THICKNESS ADJUSTMENT SECTION. USE CONCRETE BRICK, CONCRETE GRADE RINGS OR OTHER MATERIALS ACCEPTABLE TO ENGINEER.

NONSHRINK WATERPROOF GROUT BETWEEN ALL RINGS & FRAME. STRIKE OFF EXCESS MORTAR, SMOOTH ON INSIDE AND OUTSIDE OF ADJUSTMENT SECTION.

GASKETED ECCENTRIC CONCRETE PRECAST CONE

STEPS (SEE NOTES)

GASKETED PRECAST RISER SECTIONS

WELD REINFORCING STEEL AT JOINTS

SECTION A-A

48" DIA. RISER SECTION GRAFTED TO PIPE BY FABRICATOR.

MORTAR FILLET ALL AROUND

REINFORCED CONCRETE PIPE 42" MIN. DIA.

NOTES

1. MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M-199 (ASTM C 478) UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE STANDARD SPECIFICATIONS, AND IN ACCORDANCE WITH WSDOT SEC 6-02.3.
2. ALL PRECAST CONCRETE SHALL BE CLASS 4000.
3. ALL MANHOLES SHALL HAVE STEPS.
4. NO STEPS SHALL BE PLACED IN THE ADJUSTMENT RING
5. AN ECCENTRIC CONE SHALL BE REQUIRED.



EXPIRES 8/20/08

STANDARD U-07

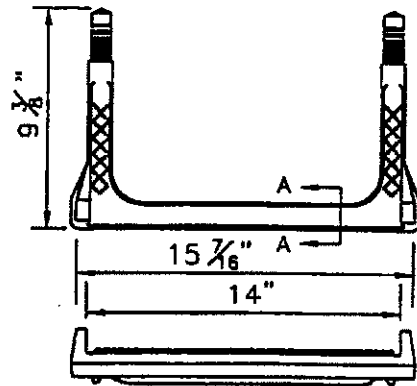
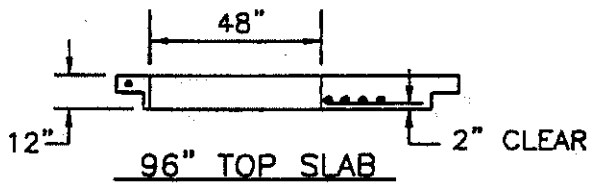
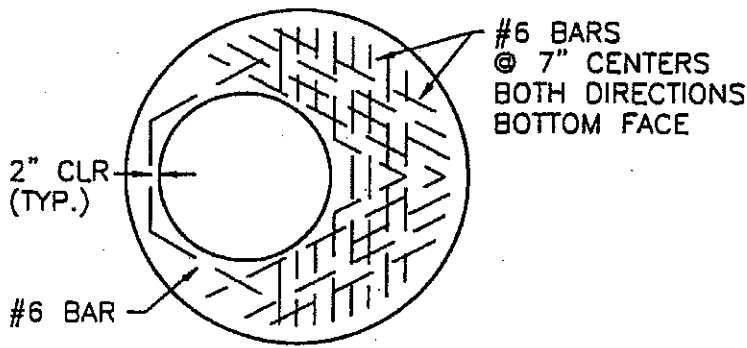
APPROVED: *Bruce Lawls*  
UTILITIES DIRECTOR  
DATE: 5/23/2006

STANDARD  
MANHOLE TYPE IV

SHEET  
U-7

SPOKANE COUNTY  
DEPARTMENT OF PUBLIC WORKS  
SPOKANE, WA. (509) 477-3604

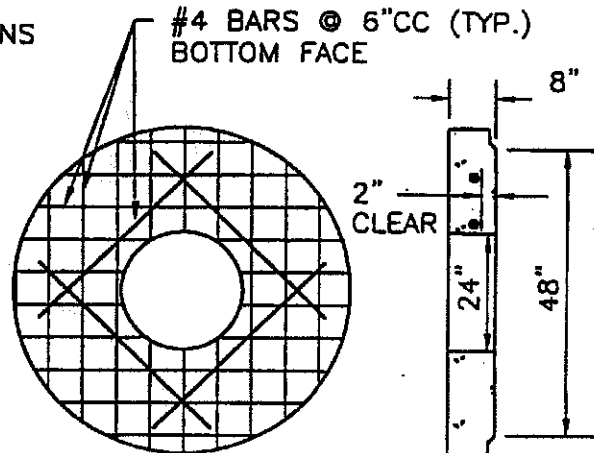
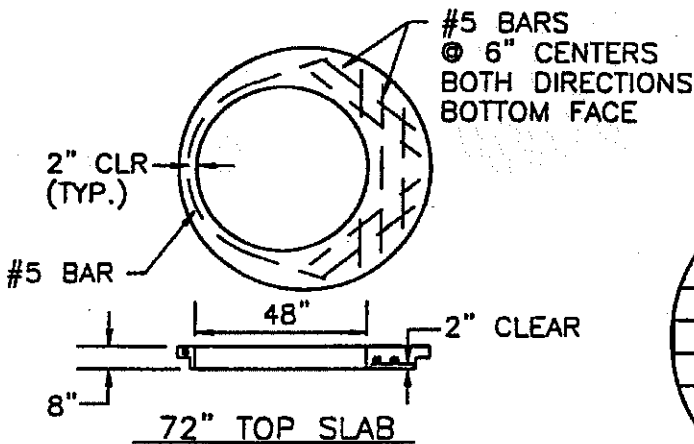
| NO. | DATE | BY  | CKD. | APPR. | REVISION                   |
|-----|------|-----|------|-------|----------------------------|
| 1   | 4/06 | LCG | KRC  | NBR   | CHANGED ADJUSTMENT SECTION |



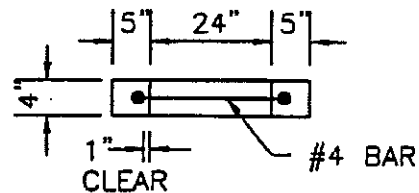
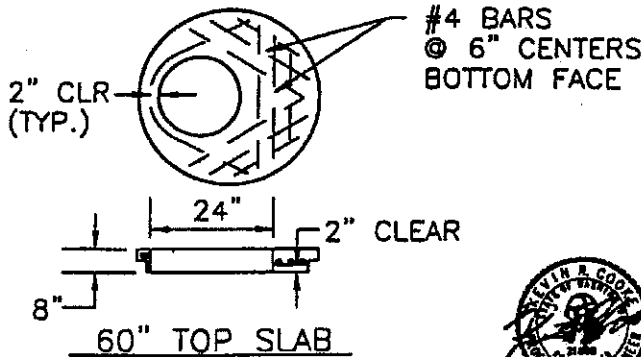
COPOLYMER POLYPROPYLENE PLASTIC  
1/2 IN. GRADE 60 STEEL REINFORCEMENT



MANHOLE STEP



48" TOP SLAB



GRADE RING



(EXPIRES 8/30/00)

STANDARD U-08

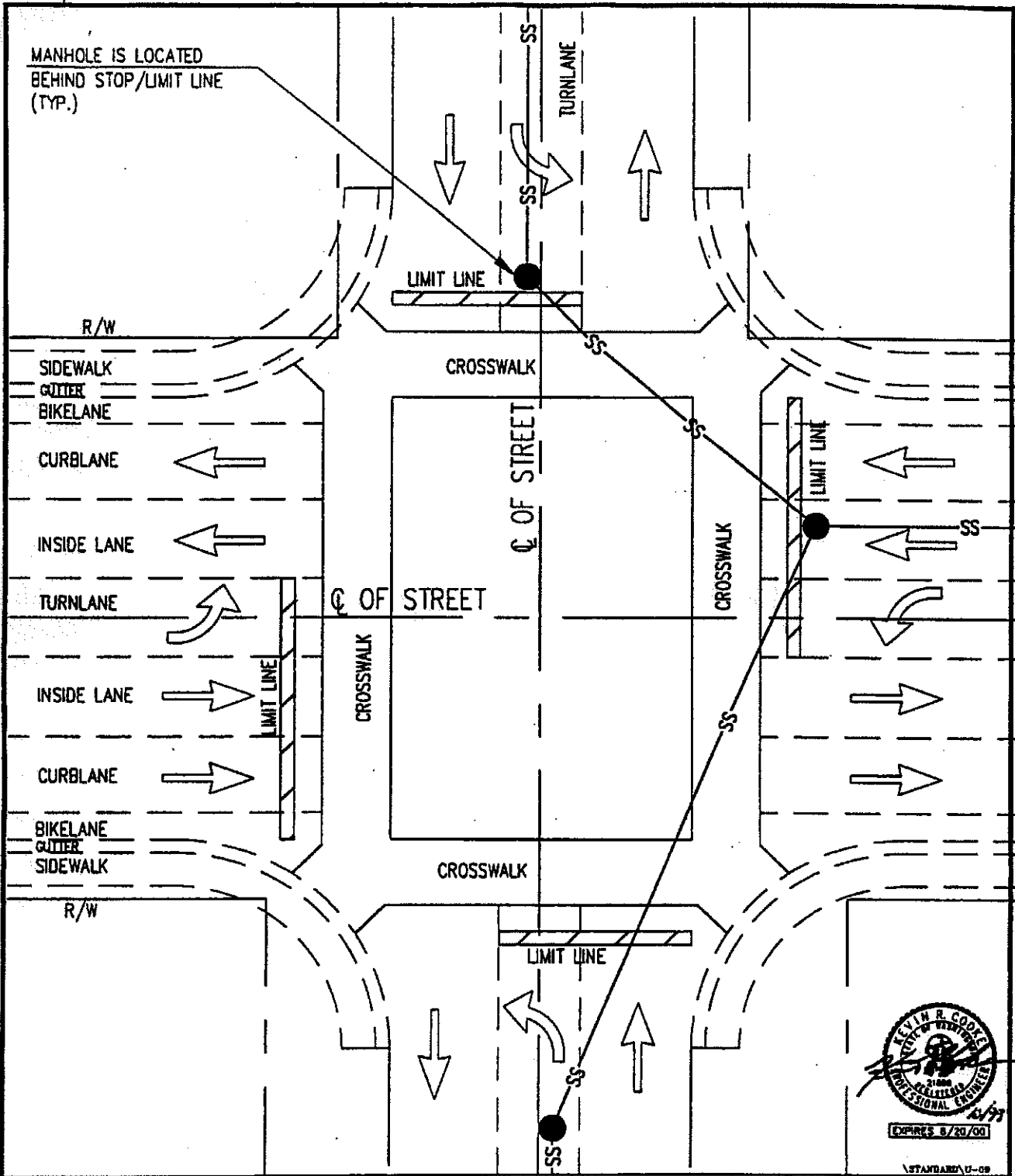
APPROVED: NBR  
UTILITIES DIRECTOR  
DATE: 11/15/99

STANDARD  
REDUCING SLABS &  
MANHOLE STEP

SHEET  
U-8

| NO. | DATE | BY | CHKD. | APPR. | REVISION |
|-----|------|----|-------|-------|----------|
|     |      |    |       |       |          |
|     |      |    |       |       |          |

SPOKANE COUNTY  
DEPARTMENT OF PUBLIC WORKS  
SPOKANE, WA. (509) 477-3804



MANHOLE IS LOCATED  
BEHIND STOP/LIMIT LINE  
(TYP.)

R/W  
SIDEWALK  
GUTTER  
BIKELANE  
CURBLANE  
INSIDE LANE  
TURNLANE  
INSIDE LANE  
CURBLANE  
BIKELANE  
GUTTER  
SIDEWALK

CROSSWALK  
C OF STREET  
C OF STREET  
CROSSWALK

LIMIT LINE

LIMIT LINE

LIMIT LINE



STANDARD U-09

APPROVED: NBR  
UTILITIES DIRECTOR  
DATE: 11/15/99

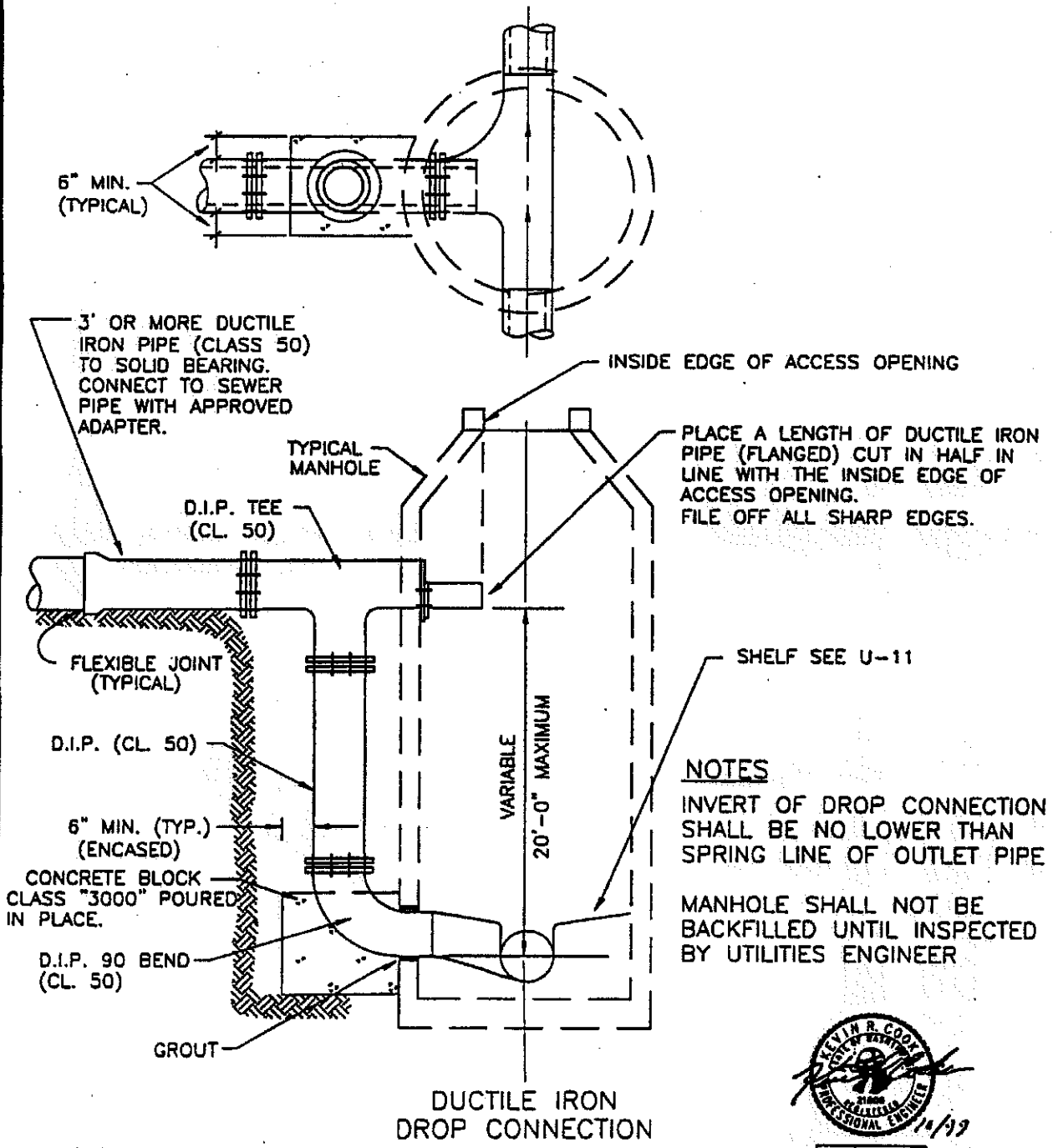
STANDARD  
MANHOLE PLACEMENT IN SIGNALIZED INTERSECTION

SHEET  
U-9

| NO. | DATE | BY | CKD. | APPR. | REVISION |
|-----|------|----|------|-------|----------|
|     |      |    |      |       |          |
|     |      |    |      |       |          |

SPOKANE COUNTY  
DEPARTMENT OF PUBLIC WORKS  
SPOKANE, WA. (509) 477-3804

**NOTE:** THIS MANHOLE MAY BE USED IN SPECIAL CIRCUMSTANCES UPON APPROVAL BY THE SPOKANE COUNTY SEWER DESIGN MANAGER



**NOTES**  
 INVERT OF DROP CONNECTION SHALL BE NO LOWER THAN SPRING LINE OF OUTLET PIPE  
 MANHOLE SHALL NOT BE BACKFILLED UNTIL INSPECTED BY UTILITIES ENGINEER



EXPIRES 8/20/00 STANDARD U-10

APPROVED: NBR  
 UTILITIES DIRECTOR  
 DATE: 11/5/99

STANDARD  
 SANITARY SEWER MANHOLE  
 EXTERIOR DROP CONNECTION

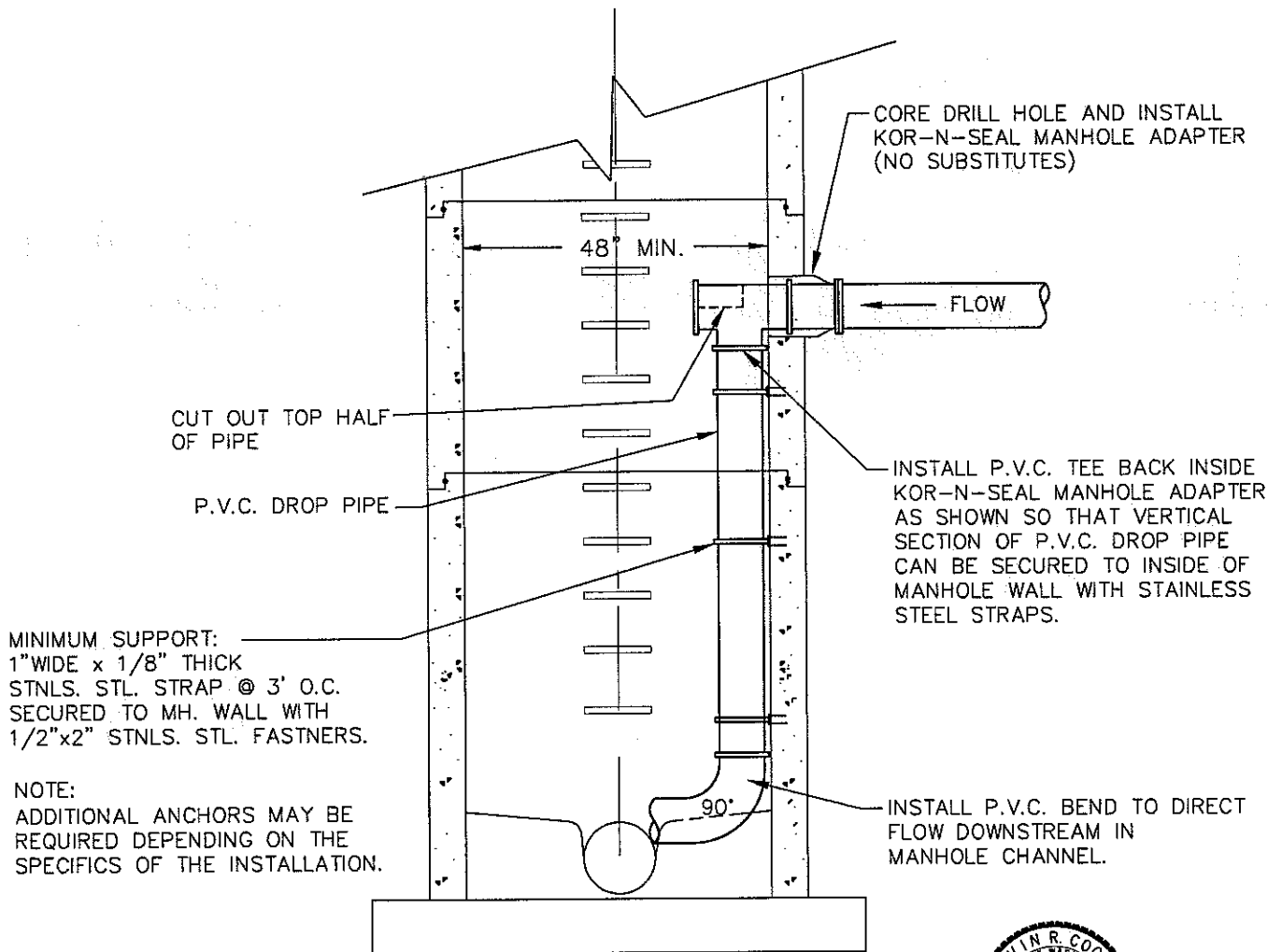
SHEET  
 U-10A

SPOKANE COUNTY  
 DEPARTMENT OF PUBLIC WORKS  
 SPOKANE, WA. (509) 477-3604

| NO. | DATE | BY | CHKD. | APPR. | REVISION |
|-----|------|----|-------|-------|----------|
|     |      |    |       |       |          |
|     |      |    |       |       |          |

## NOTES

1. THIS DETAIL MAY BE USED IN SPECIAL CIRCUMSTANCES UPON APPROVAL BY THE SPOKANE COUNTY SEWER DESIGN MANAGER. MODIFICATIONS TO THIS DETAIL MAY BE REQUIRED, DEPENDING UPON THE SPECIFIC INSTALLATION.
2. ADDITIONAL ANCHORS MAY BE REQUIRED DEPENDING ON THE SPECIFICS OF THE INSTALLATION.
3. A DIVISION OF UTILITIES REPRESENTATIVE SHALL BE ON SITE DURING CORING OF MANHOLE. CALL 477-3604 24 HOURS IN ADVANCE TO SCHEDULE INSPECTION.



EXPIRES 8/20/06

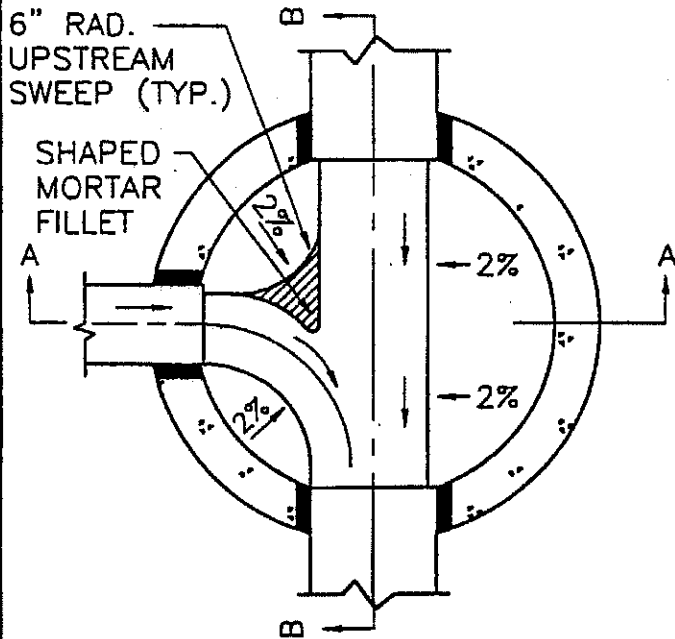
STANDARD U-10B

APPROVED: *Bruce Lawls*  
UTILITIES DIRECTOR  
DATE: 5/23/2006

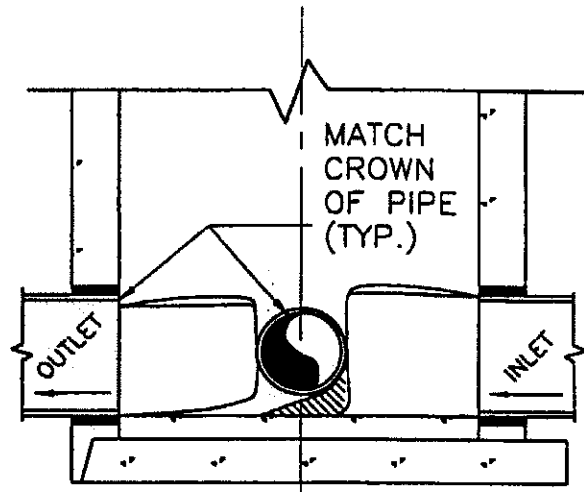
STANDARD  
SANITARY SEWER MANHOLE  
INTERIOR DROP CONNECTION

SHEET  
U-10B

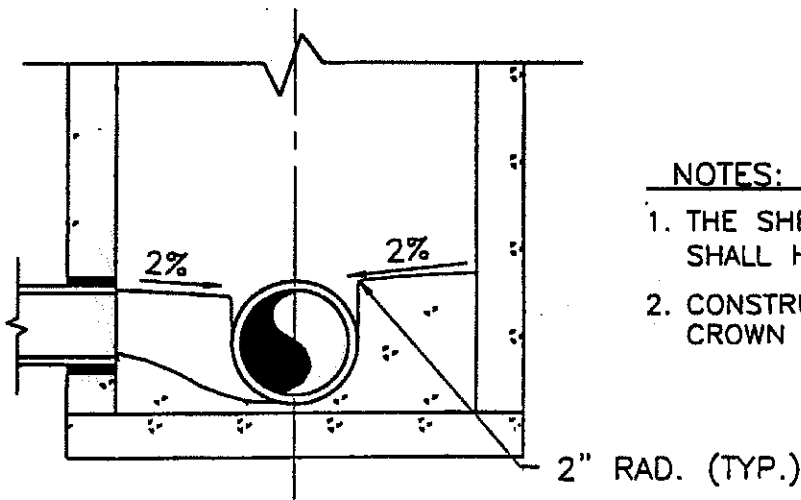
|     |      |    |      |       | SPOKANE COUNTY<br>DEPARTMENT OF PUBLIC WORKS<br>SPOKANE, WA. (509) 477-3604 |  |
|-----|------|----|------|-------|---|--|
| NO. | DATE | BY | CKD. | APPR. | REVISION  |  |
| 1   | 4/06 | GG | KRC  | NBR   | ADDED NOTES AND CLARIFIED ORIENTATION                                       |  |



PLAN



SECTION B-B



SECTION A-A

NOTES:

1. THE SHELF AND CHANNEL SHALL HAVE A SMOOTH FINISH.
2. CONSTRUCT SHELF TO THE CROWN LINE OF PIPE.



COVERS 8/25/00

STANDARD U-11

APPROVED: NBR  
 UTILITIES DIRECTOR  
 DATE: 11/15/99

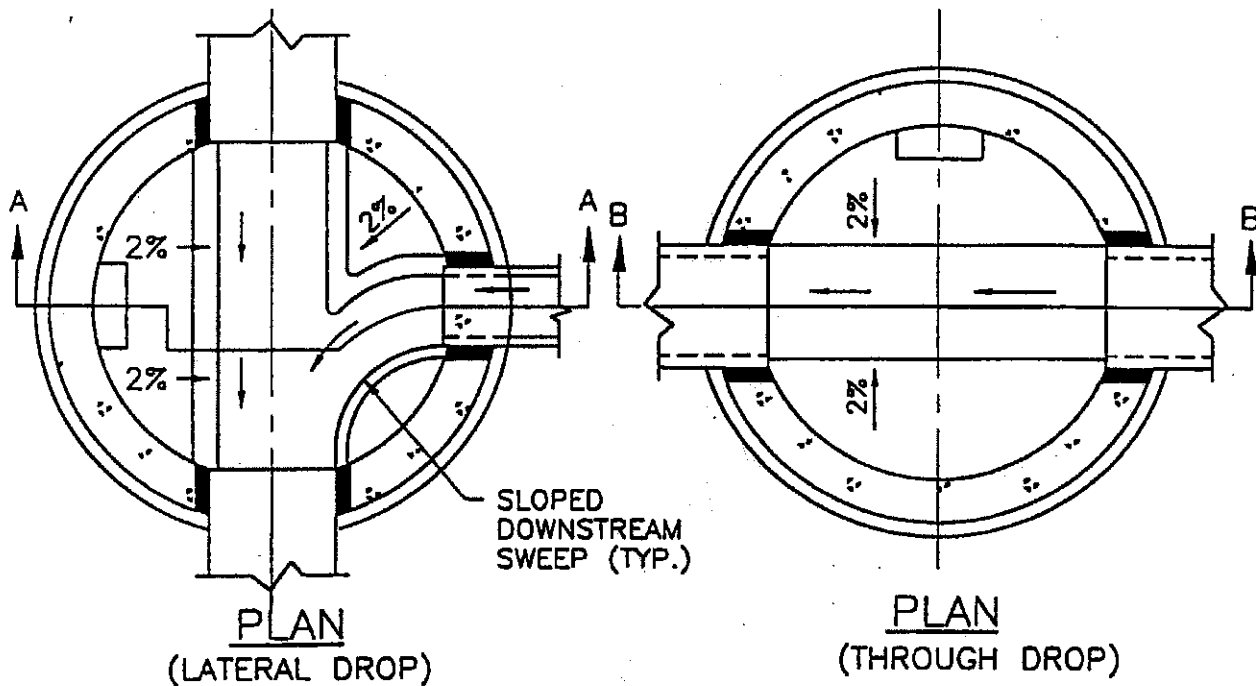
STANDARD  
 TYPICAL CHANNEL DETAIL

SHEET  
U-11

| NO. | DATE | BY | CHKD. | APPR. | REVISION |
|-----|------|----|-------|-------|----------|
|     |      |    |       |       |          |
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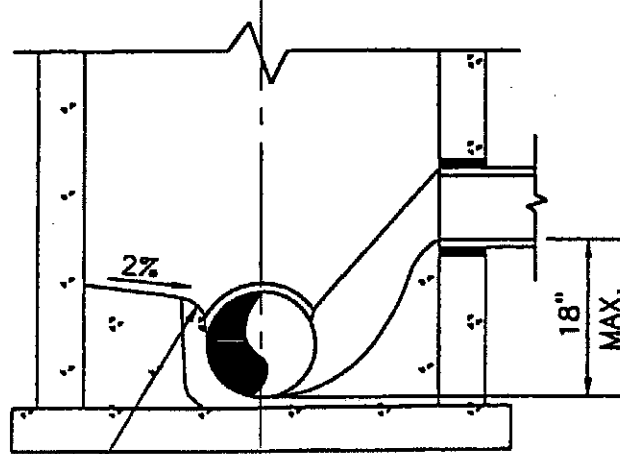
SPOKANE COUNTY  
 DEPARTMENT OF PUBLIC WORKS  
 SPOKANE, WA. (509) 477-3804



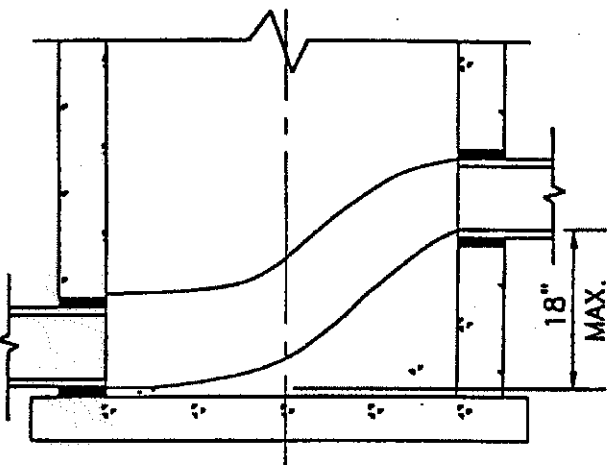


**NOTES**

1. THE SHELF AND CHANNEL SHALL HAVE A SMOOTH FINISH.
2. MAXIMUM PIPE SIZE IS 15" DIA. UNLESS OTHERWISE SPECIFIED.



SECTION A-A



SECTION B-B



EXPIRES 8/29/09

STANDARD U-12

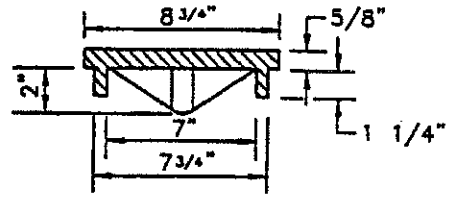
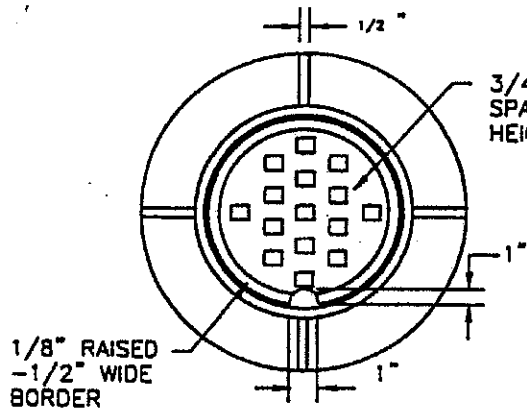
APPROVED: NBR  
 UTILITIES DIRECTOR  
 DATE: 11/18/99

STANDARD  
 INTERIOR DROP CHANNELS

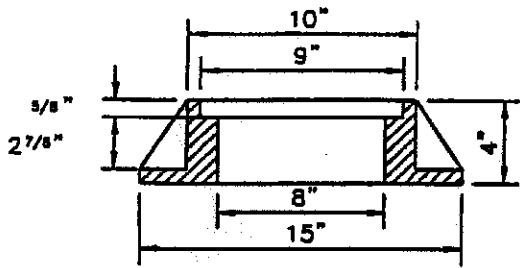
SHEET  
U-12

| NO. | DATE | BY | CHKD. | APPR. | REVISION |
|-----|------|----|-------|-------|----------|
|     |      |    |       |       |          |

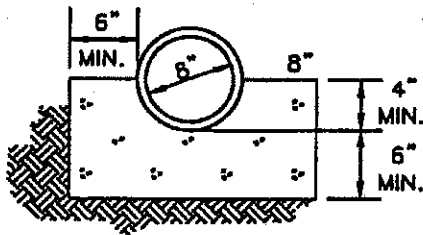
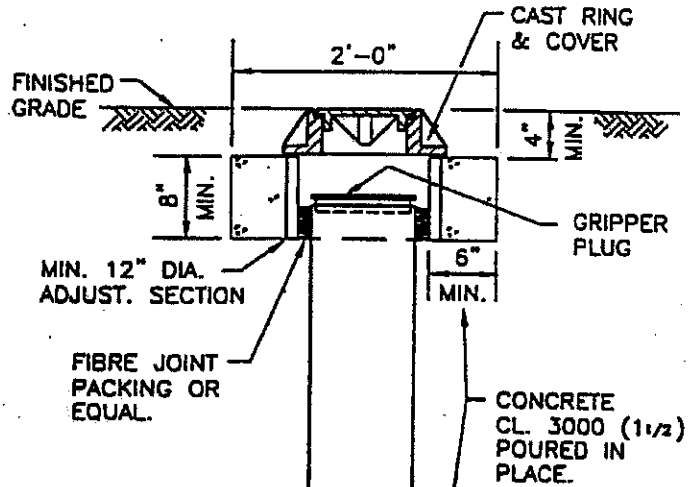
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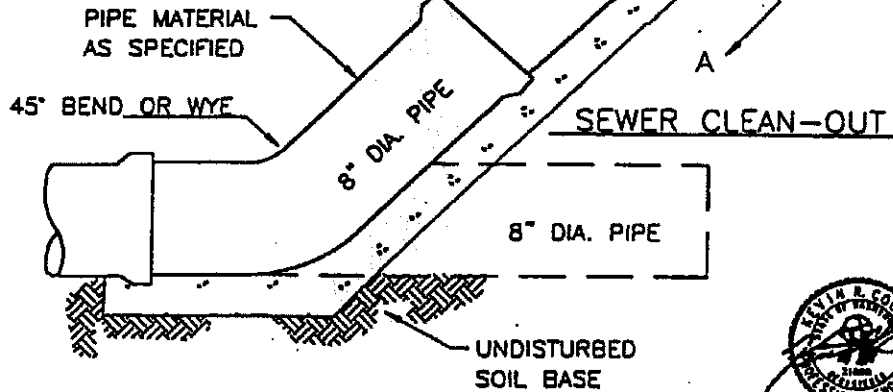
CAST IRON COVER



CAST IRON RING



SECTION A-A



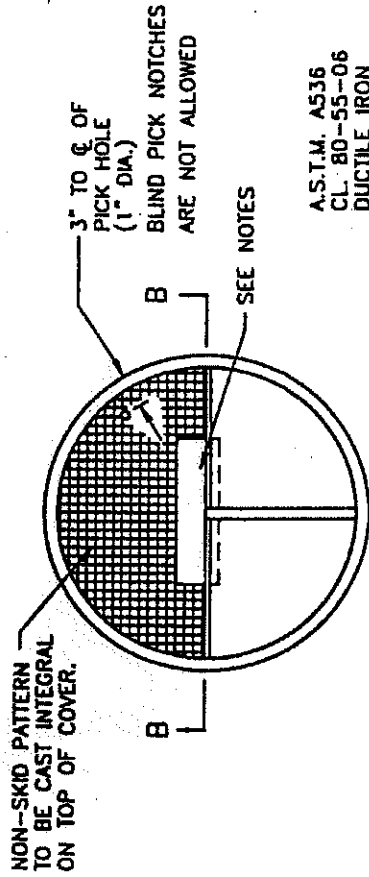
APPROVED: NBR  
UTILITIES DIRECTOR  
DATE: 11/15/99

STANDARD  
MAIN LINE SEWER CLEAN-OUT WITH  
CAST IRON RING & COVER

SHEET  
U-13

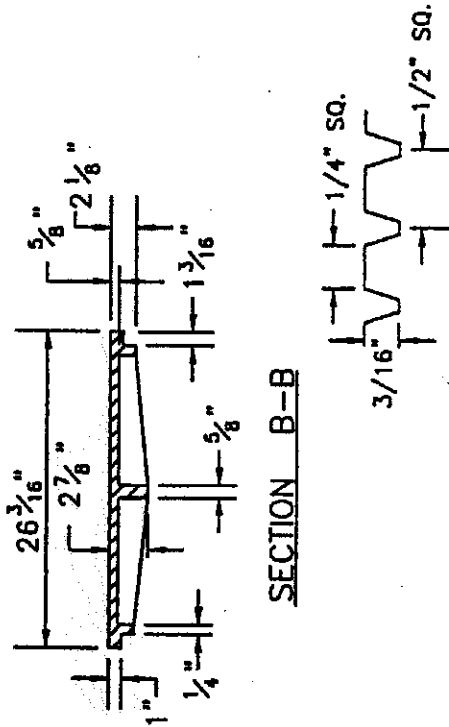
| NO. | DATE | BY | CHKD. | APPR. | REVISION |
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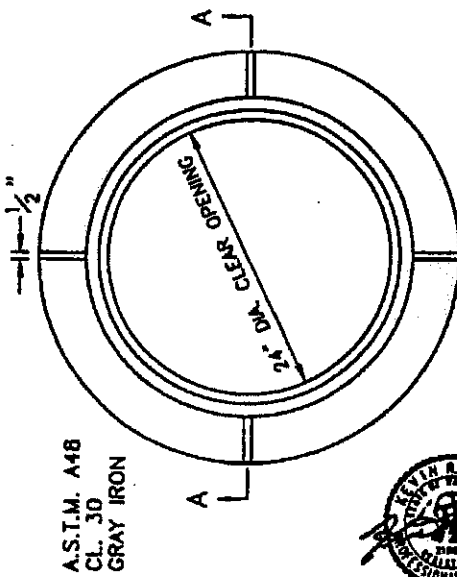
A.S.T.M. A536  
CL. 80-55-06  
DUCTILE IRON

DUCTILE IRON COVER  
MIN. WEIGHT 118 LBS.



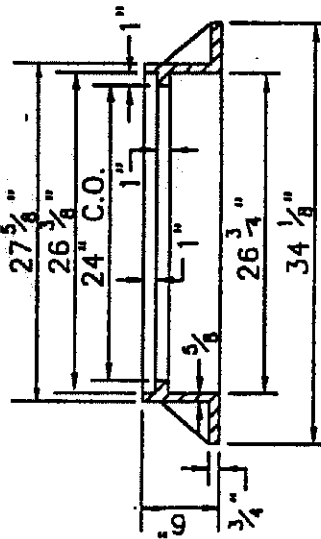
SECTION B-B

COVER SKID DESIGN DETAIL



A.S.T.M. A48  
CL. 30  
GRAY IRON

CAST IRON FRAME  
MIN. WEIGHT 168 LBS.



SECTION A-A

NOTES:

1. THE WORD SEWER SHALL BE EMBOSSED ON EACH SANITARY MANHOLE COVER WITH 3/16" RAISED LETTERS.
2. MANHOLE RINGS AND COVERS SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-821E.
3. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.



EXPIRES 8/26/90

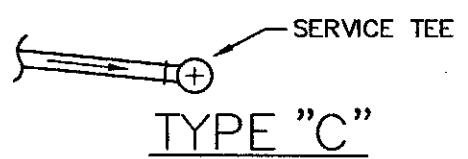
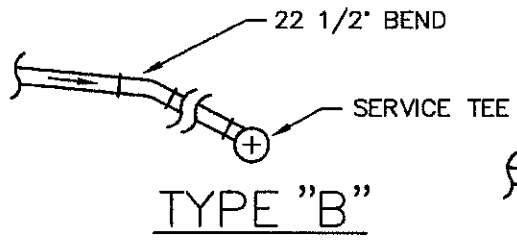
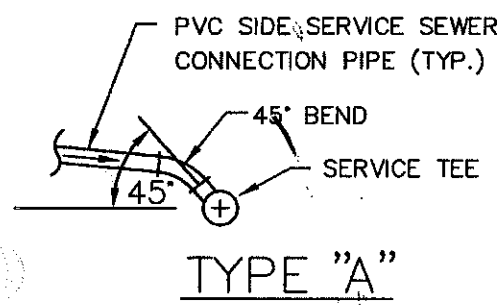
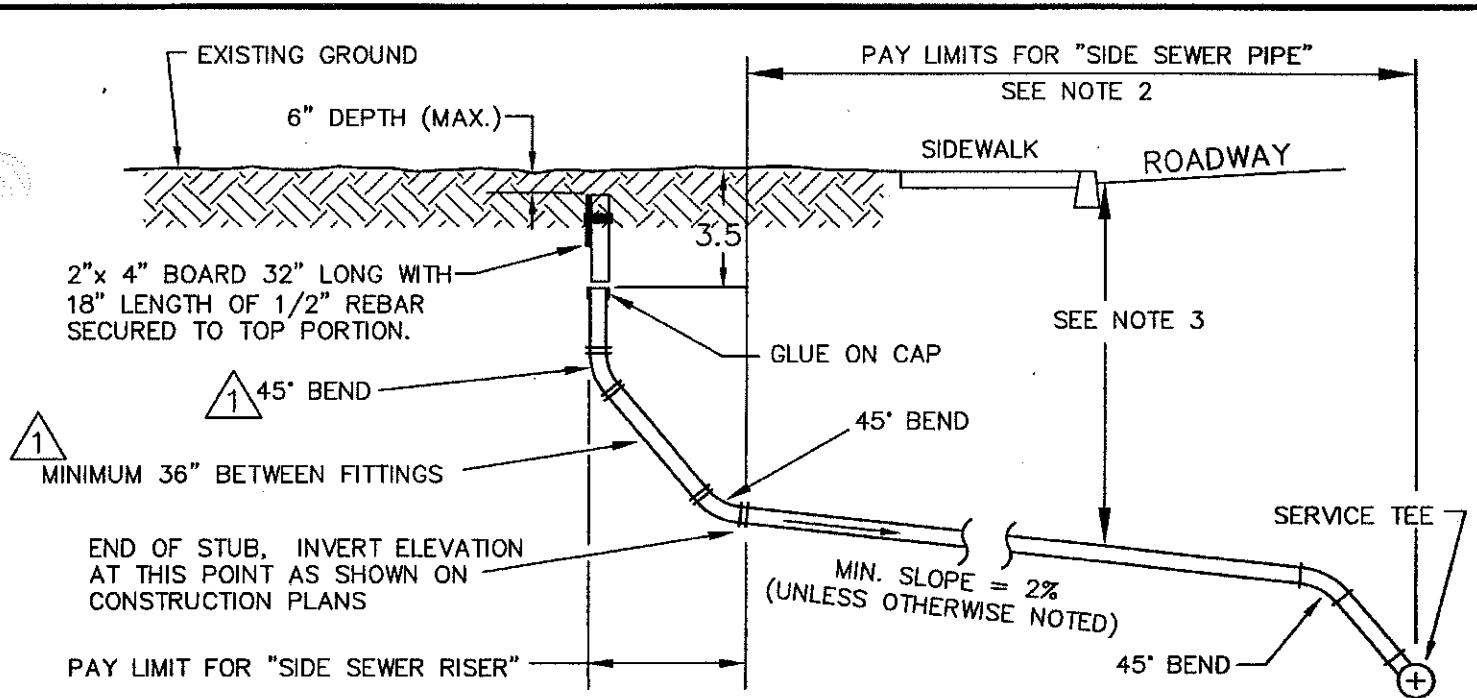
APPROVED: NBR  
UTILITIES DIRECTOR  
DATE: 11/15/99

STANDARD  
MANHOLE RING AND COVER

SHEET  
U-14

| NO. | DATE | BY | CHKD. | APPR. | REVISION |
|-----|------|----|-------|-------|----------|
|     |      |    |       |       |          |

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**NOTES**

1. INSTALL PIPE ZONE MATERIAL (BEDDING) PER SPECIFICATIONS.
2. THE SIDE SEWER PIPE SHALL EXTEND TO THE POINT SHOWN ON THE PLANS. THE ENGINEER MAY FURTHER EXTEND THE SIDE SEWER PIPE TO MAINTAIN A 1:1 SLOPE FROM EXISTING OR PLANNED EDGE OF ASPHALT OR CONCRETE IMPROVEMENTS.
3. ALL SIDE SERVICES TO BE INSTALLED AT A MINIMUM DEPTH OF 8' WITHIN THE RIGHT OF WAY, UNLESS APPROVED BY THE SEWER DESIGN MANAGER.
4. THE RECORD DRAWINGS FOR EACH INDIVIDUAL STUB SHALL INCLUDE TWO (2) HORIZONTAL TIES TO THE TOP OF THE RISER. IN ADDITION, THE SEWER MAINLINE STATION AND 90° OFFSET DISTANCE TO THE RISER PIPE SHALL BE PROVIDED. THE DEPTH AND INVERT ELEVATION REQUIRED ON THE RECORD DRAWING (SPOKANE COUNTY STD. SHEET U-16) SHALL REFER TO THE PIPE INVERT AT THE BOTTOM OF THE SIDE SEWER RISER.
5. ALL CONNECTIONS SHALL BE TYPE "A" UNLESS OTHERWISE NOTED.
6. SIDE SEWER RISER IS OPTIONAL INSIDE NEW DEVELOPMENTS. IF RISER IS NOT INSTALLED, EXTEND 2" X 4" MARKER TO STUB INVERT.
7. SERVICE TEE SHALL MEET ASTM D3034, SDR 26.



APPROVED: *N. Bruce Rawls*  
 UTILITIES DIRECTOR  
 DATE: 3/16/04

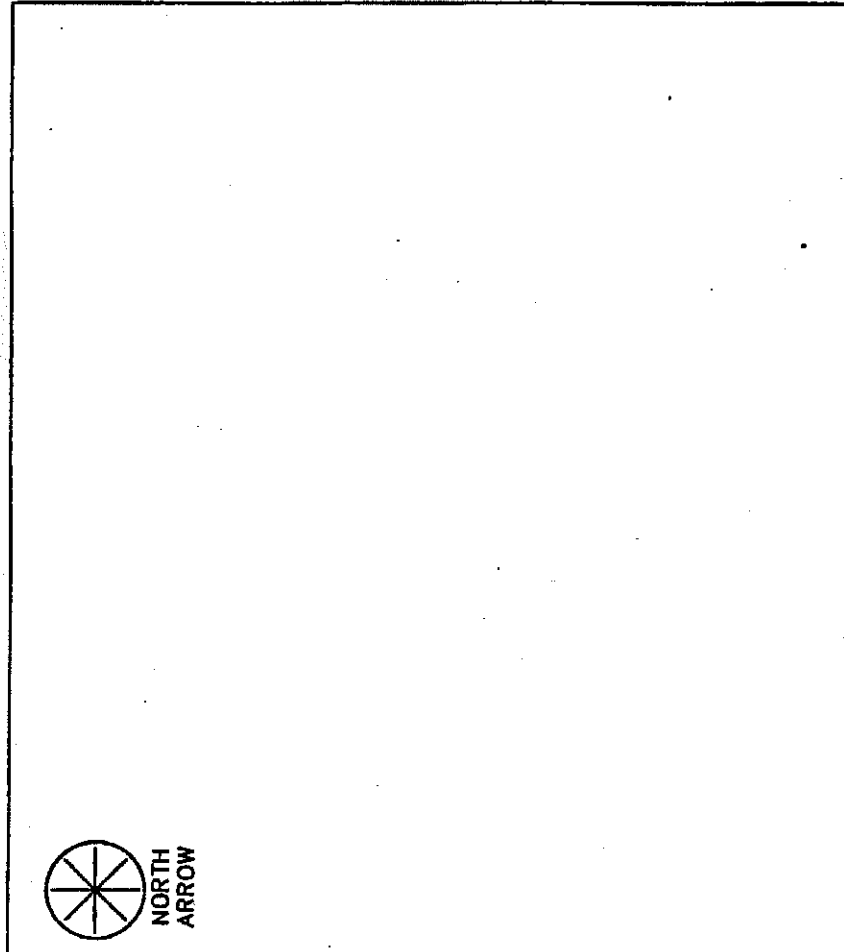
STANDARD  
 SERVICE CONNECTION

SHEET  
 U-15

|     |      |    |      |       |  |
|-----|------|----|------|-------|--|
| 1   | 3/04 | GG | MS   | KRC   | DELETED DEEP SOCKET BEND REQUIREMENT           |
| 1   | 3/04 | GG | MS   | KRC   | ADDED NOTES 6 AND 7                            |
| 1   | 3/04 | GG | MS   | KRC   | LENGTH BETWEEN 45's WAS 12" MIN., NOW 36" MIN. |
| NO. | DATE | BY | CKD. | APPR. | REVISION                                       |

SPOKANE COUNTY  
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CONTRACTOR \_\_\_\_\_  
 INSPECTOR \_\_\_\_\_  
 COMPANY \_\_\_\_\_  
 DATE INSTALLED \_\_\_\_\_  
 STUB: DIA. \_\_\_\_\_ TEE TYPE \_\_\_\_\_  
 LENGTH \_\_\_\_\_  
 CENTERLINE STATION \_\_\_\_\_  
 LINE NO. \_\_\_\_\_  
 STA. OF AND DIRECTION TO NEAREST MANHOLE \_\_\_\_\_  
 INVERT EL. \_\_\_\_\_  
 DEPTH FROM NATURAL GROUND TO STUB \_\_\_\_\_  
 LOCAL B.M. ELEV. \_\_\_\_\_  
 DESCRIPTION OF LOCAL B.M. \_\_\_\_\_  
 PIPE GRADE \_\_\_\_\_ FT. BELOW THRESHOLD \_\_\_\_\_  
 HOUSE TYPE \_\_\_\_\_  
 REMARKS \_\_\_\_\_



NOTE: MAKE TIES TO PERMANENT SURFACE FEATURES SHOWN ON PLANS

PROJECT NAME: \_\_\_\_\_  
 REF. DRAWING NO. \_\_\_\_\_  
 FILE NUMBER: \_\_\_\_\_  
 PARCEL: \_\_\_\_\_  
 STREET: \_\_\_\_\_  
 ADDRESS: \_\_\_\_\_

APPROVED:   NJR    
 UTILITIES DIRECTOR  
 DATE:   11/15/99  

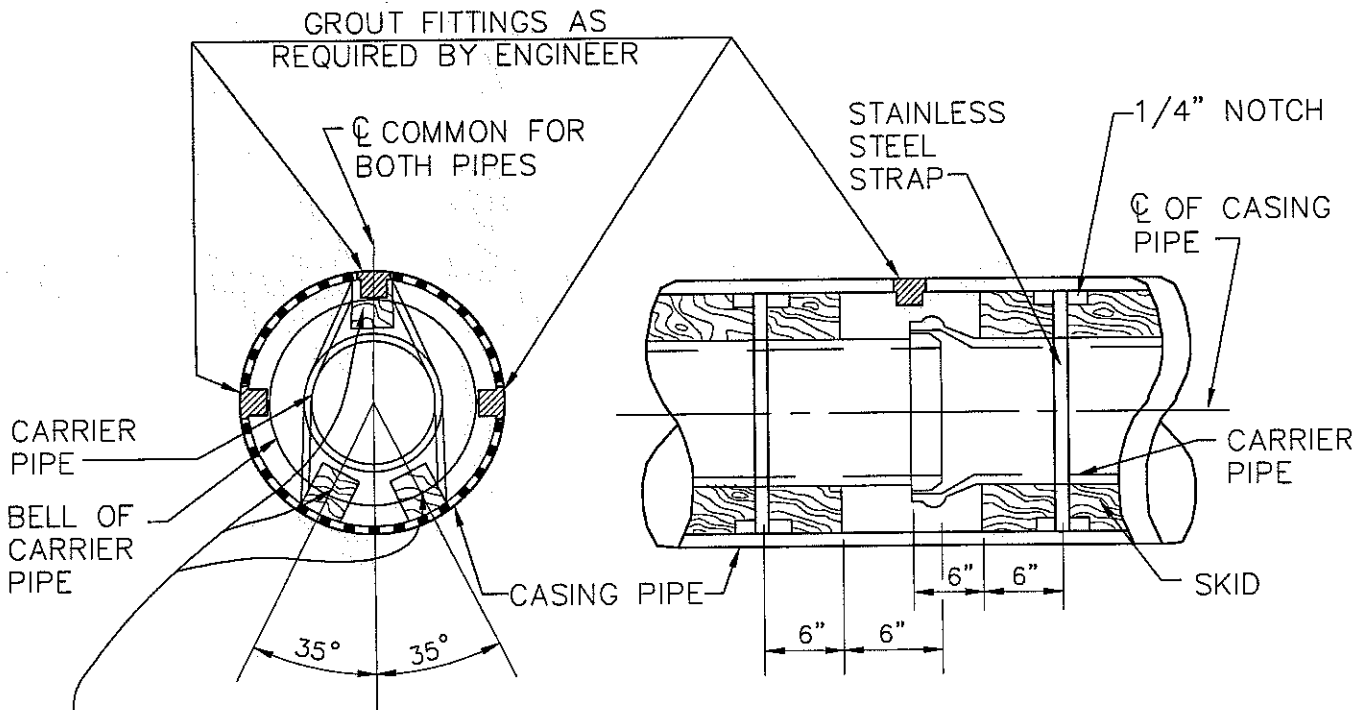
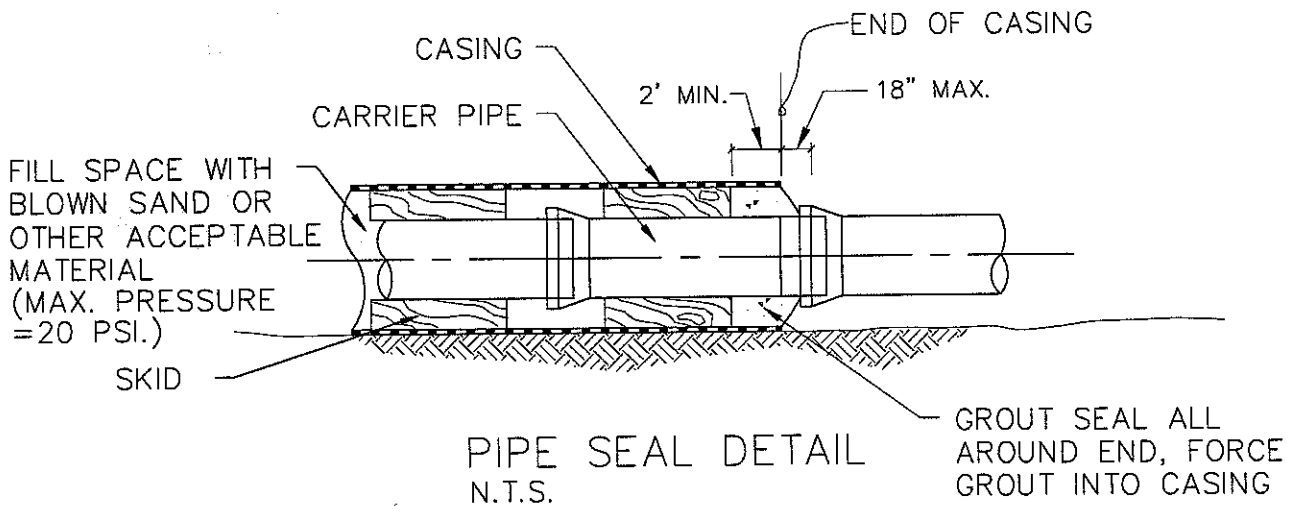


STANDARD  
 SIDE SERVICE CONNECTION  
 RECORD DRAWINGS

STANDARD U-16  
 SHEET  
  U-16  

| NO. | DATE | BY | CKD. | APPR. | REVISION |
|-----|------|----|------|-------|----------|
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PRESSURE TREATED FIR SKIDS FOR ENTIRE LENGTH OF PIPELINE THRU CASING - OMIT AT BELLS. FASTEN TO CARRIER PIPE BARREL WITH CONTINUOUS CONTACT CEMENT BOND AND 3 STAINLESS STEEL STRAPS PER PIPE BARREL. NOTCH SKIDS 1/4" DEEP FOR STRAPS AS SHOWN. CREOSOTE TREATED WOOD IS PROHIBITED. COMMERCIALY FABRICATED CASING SPACERS APPROVED BY THE ENGINEER MAY BE USED IN LIEU OF THE FIR SKIDS.

TYPICAL PIPE CASING DETAIL  
N.T.S.



5-23-06

EXPIRES 8/20/06 STANDARD U-17

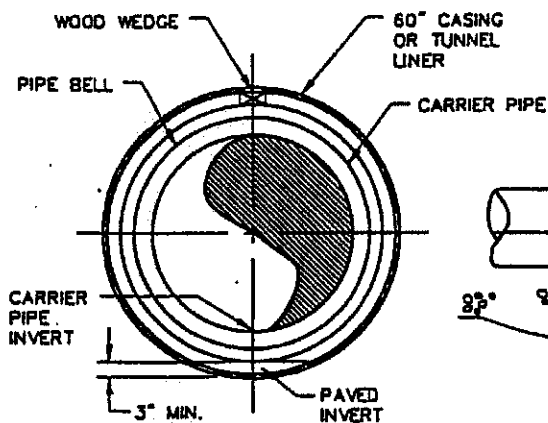
APPROVED: *Bruce Rawls*  
UTILITIES DIRECTOR  
DATE: 5/23/2006

STANDARD  
TYPICAL PIPE CASING DETAIL

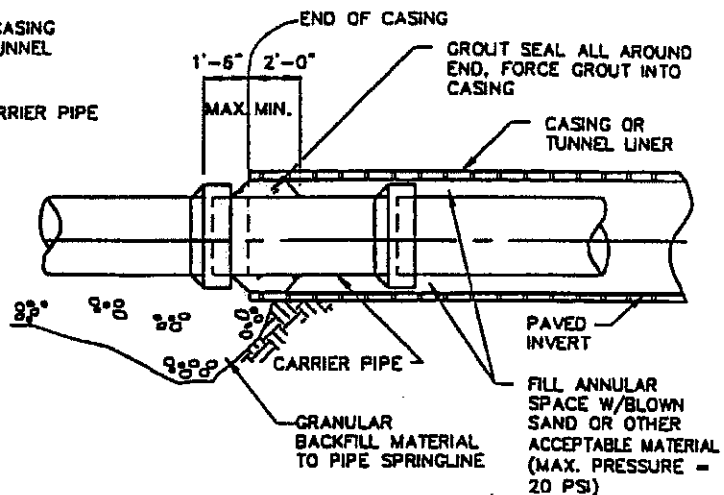
SHEET  
U-17

| NO. | DATE | BY | CKD. | APPR. | REVISION             |
|-----|------|----|------|-------|----------------------|
| 1   | 4/06 | GG | KRC  | NBR   | MISSPELLING IN NOTES |

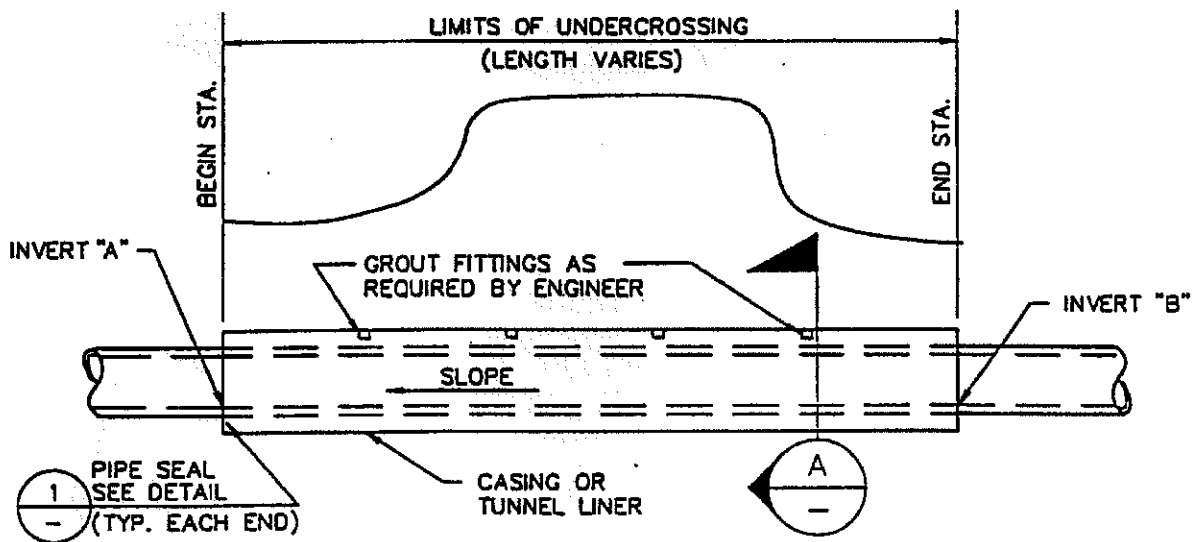
SPOKANE COUNTY  
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**SECTION A**



**PIPE SEAL** (1)



APPROVED: NBR  
 UTILITIES DIRECTOR  
 DATE: 11/15/99

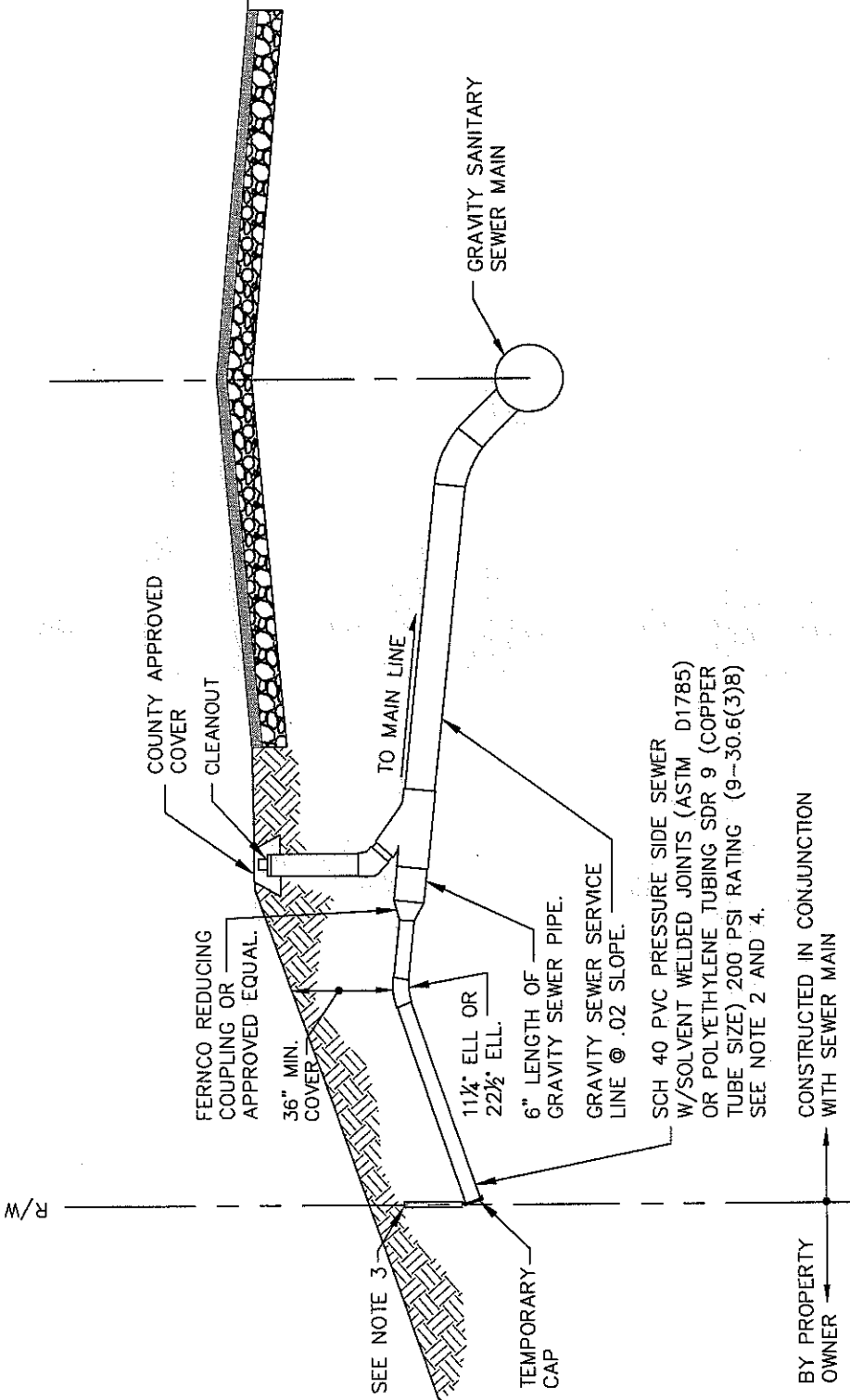
STANDARD  
**TYPICAL PIPE CASING DETAIL**  
 (CONCRETE)

SHEET  
**U-18**

| NO. | DATE | BY | CHKD. | APPR. | REVISION |
|-----|------|----|-------|-------|----------|
|     |      |    |       |       |          |
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**SPOKANE COUNTY**  
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R/W



**NOTES:**

1. GRINDER PUMP ASSEMBLY CHECK VALVE AND PRESSURE SIDE SEWER INSTALLED BY PROPERTY OWNER.
2. PRESSURE SIDE SEWER AND SOLVENT WELD JOINTS SHALL BE PRESSURE TESTED AT 50 PSI FOR 15 MINUTES WITHOUT PRESSURE LOSS. PRESSURE TEST PIPE AND BUSHING PRIOR TO MAKING CONNECTION TO THE 4" STUB.
3. THE END OF THE PIPE (TEMPORARY CAP) SHALL BE MARKED ACCORDING TO SPOKANE COUNTY STANDARD PLAN U-15.
4. PRESSURE SERVICE STUB TO BE CONSTRUCTED IN CONFORMANCE WITH SPOKANE COUNTY STANDARD PLAN U-23 IF WATER MAIN CROSSING IS ENCOUNTERED.

SCH 40 PVC PRESSURE SIDE SEWER  
 W/SOLVENT WELDED JOINTS (ASTM D1785)  
 OR POLYETHYLENE TUBING SDR 9 (COPPER  
 TUBE SIZE) 200 PSI RATING (9-30.6(3)8)  
 SEE NOTE 2 AND 4.

BY PROPERTY OWNER  
 CONSTRUCTED IN CONJUNCTION  
 WITH SEWER MAIN



5-23-06

EXPIRES 8/20/06

DRAWINGS\IN-PLUM

APPROVED: *Bruce Kowals*  
 UTILITIES DIRECTOR  
 DATE: 5/23/2006

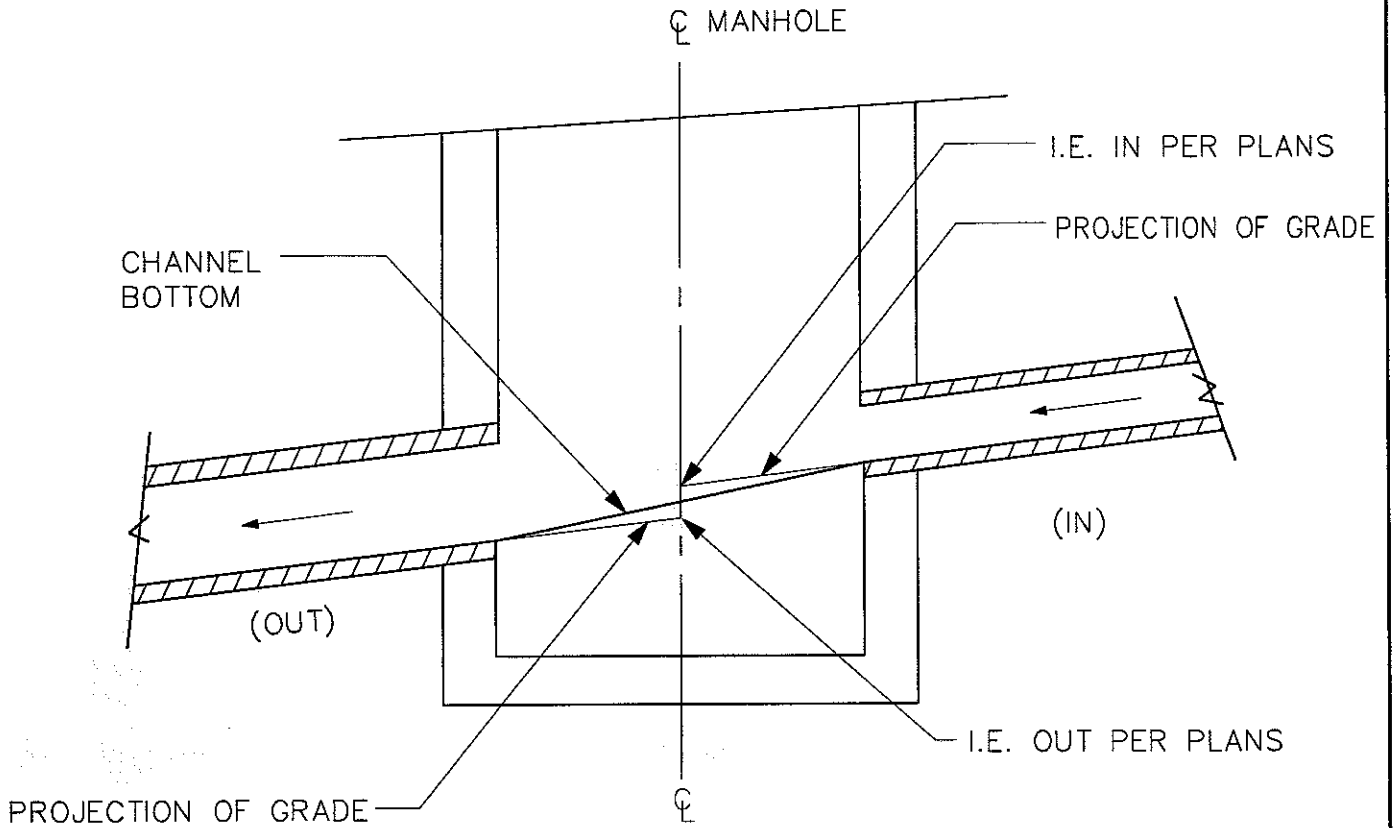
STANDARD  
 PRESSURE SERVICE STUB  
 FROM GRAVITY SEWER MAIN

SHEET  
 U-19

SPOKANE COUNTY  
 DEPARTMENT OF PUBLIC WORKS  
 SPOKANE, WA. 99206 477-3604

| NO. | DATE | BY | CKD. | APPR. | REVISION |
|-----|------|----|------|-------|----------|
|     |      |    |      |       |          |
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### MANHOLE I.E. DETAIL

NOT TO SCALE

**NOTES:**

INVERT ELEVATIONS SHOWN ON PLANS SHALL BE CALCULATED BY PROJECTING PIPE GRADES TO CENTER OF MANHOLE.

THE DIFFERENCE BETWEEN THE PLAN INVERT ELEVATION FOR THE INLET & THE DISCHARGE LINES SHALL BE AT LEAST 0.10' REGARDLESS OF GRADE. DEVIATIONS MUST BE APPROVED BY SEWER DESIGN MANAGER



EXPIRES 8/20/06 STANDARD U-20

APPROVED: *Bruce Lawls*  
 UTILITIES DIRECTOR  
 DATE: 5/23/2006

==== STANDARD ====

### MANHOLE INVERT ELEVATION DETAIL

SHEET  
U-20

| NO. | DATE | BY | CKD. | APPR. | CHANGES IN NOTES |
|-----|------|----|------|-------|------------------|
| 1   | 4/06 | GG | KRC  | NBR   | CHANGES IN NOTES |
|     |      |    |      |       | REVISION         |

SPOKANE COUNTY  
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PVC FEMALE ADAPTER COUPLING

ADJUST VALVE BOX TO MATCH FINAL ROAD GRADE. TOP OF LID TO READ "SEWER"

CAST IRON VALVE BOX TRAFFIC RATED

SERVICE CLAMP OR TEE

12"x8"x2" SOLID CONCRETE THRUST BLOCK

LOW PRESSURE MAIN  
BRASS CORPORATION STOP

CONCRETE BLOCK

PVC PIPE SCHED. 40 PER ASTM 1785

PROPERTY LINE

1'

4" MIN.

TOP OF LID TO READ "SEWER"

PROVIDE 6" SQ. CONC. PAD

FINISH GRADE

CURB BOX W/FOOT AND SLEEVE, TRAFFIC RATED

BRASS CURB STOP

BALL CHECK VALVE

BRASS THREADED COUPLER

PVC PLUG

6" BRASS OR STAINLESS STEEL NIPPLE

CONCRETE BLOCK

6" BRASS OR STAINLESS STEEL NIPPLE

BRASS THREADED COUPLER

CONCRETE BLOCK

PVC FEMALE ADAPTER COUPLING

NOTES/SPECIFICATIONS:

1. SEE PLANS FOR PIPE AND FITTING DIAMETERS AND INSTALLATION LENGTH.
2. PIPE SHALL BE PVC SCHEDULE 40 PER ASTM 1785.
3. FITTINGS SHALL BE PVC SCHEDULE 80 PER ASTM 2467 UNLESS OTHERWISE INDICATED.
4. CORPORATION STOPS AND CURB STOPS SHALL BE BRASS AND SHALL CONFORM TO THE PROVISIONS OF AWWA C800.
5. SERVICE CLAMP SHALL CONFORM TO THE PROVISIONS OF AWWA C800, BRONZE, SIZED TO FIT THE PRESSURE MAIN DIAMETER, WITH THREADS COMPATIBLE WITH THE CORPORATION STOP.
6. CURB BOX SHALL BE CAST IRON, IMPROVED EXTENSION TYPE WITH ARCH PATTERN BASE, FOOT AND SLEEVE.
7. INSTALLATION SHALL CONFORM TO THE APPLICABLE PROVISIONS OF THE SPOKANE COUNTY STANDARD SPECIFICATIONS FOR ROAD AND SEWER CONSTRUCTION, LATEST EDITION.
8. BALL CHECK VALVE SHALL BE FLOMATIC MODEL 208, CAST IRON, WITH EPOXY COATED BODY.
9. INSTALL VALVE BOX OPERATING NUT EXTENSION FOR SHUT OFF IF DEPTH EXCEEDS 4 FEET.



DRAWINGS U-21

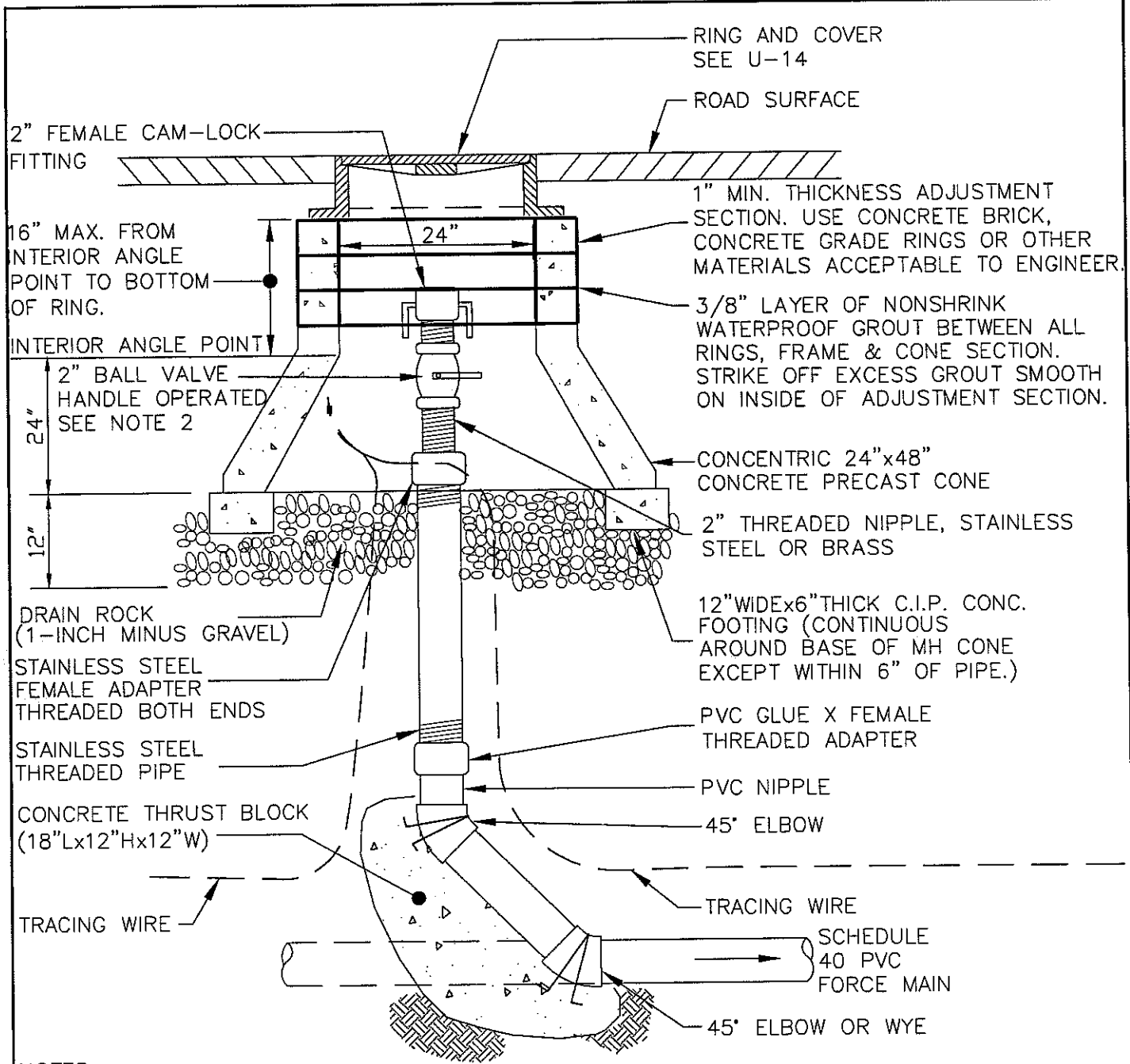
APPROVED: *Bruce Rawls*  
UTILITIES DIRECTOR  
DATE: 5/23/2006

STANDARD  
PRESSURE SERVICE STUB  
FROM FORCE MAIN

SHEET  
U-21

| NO. | DATE | BY | CKD. | APPR. | REVISION |
|-----|------|----|------|-------|----------|
|     |      |    |      |       |          |

SPOKANE COUNTY  
DEPARTMENT OF PUBLIC WORKS  
SPOKANE, WA. 99206 477-3604



**NOTES:**

1. FLUSHING CONNECTIONS SHALL BE INSTALLED AT TERMINAL END OF EACH MAIN, A MINIMUM OF EVERY 1000 LINEAL FEET ON STRAIGHT RUNS OF PIPE, AND AT THE INTERSECTION OF 3 OR MORE FORCE MAINS.
2. BALL VALVE SHALL BE 2 WAY STAINLESS STEEL SIZED TO MATCH FORCE MAIN DIAMETER, BY PITTSBURG BRASS OR APPROVED EQUAL.
3. TRACING WIRE (10GA. GALV.) TO BE INSTALLED MAX. 2' ABOVE FORCE MAIN LINE FOR THE ENTIRE LENGTH, WITH CONTACT POINTS AT MAIN LINE GATE VALVES AND FLUSHING CONNECTIONS.



5-23-06

EXPIRES 8/20/06  
DRAWINGS\U-22

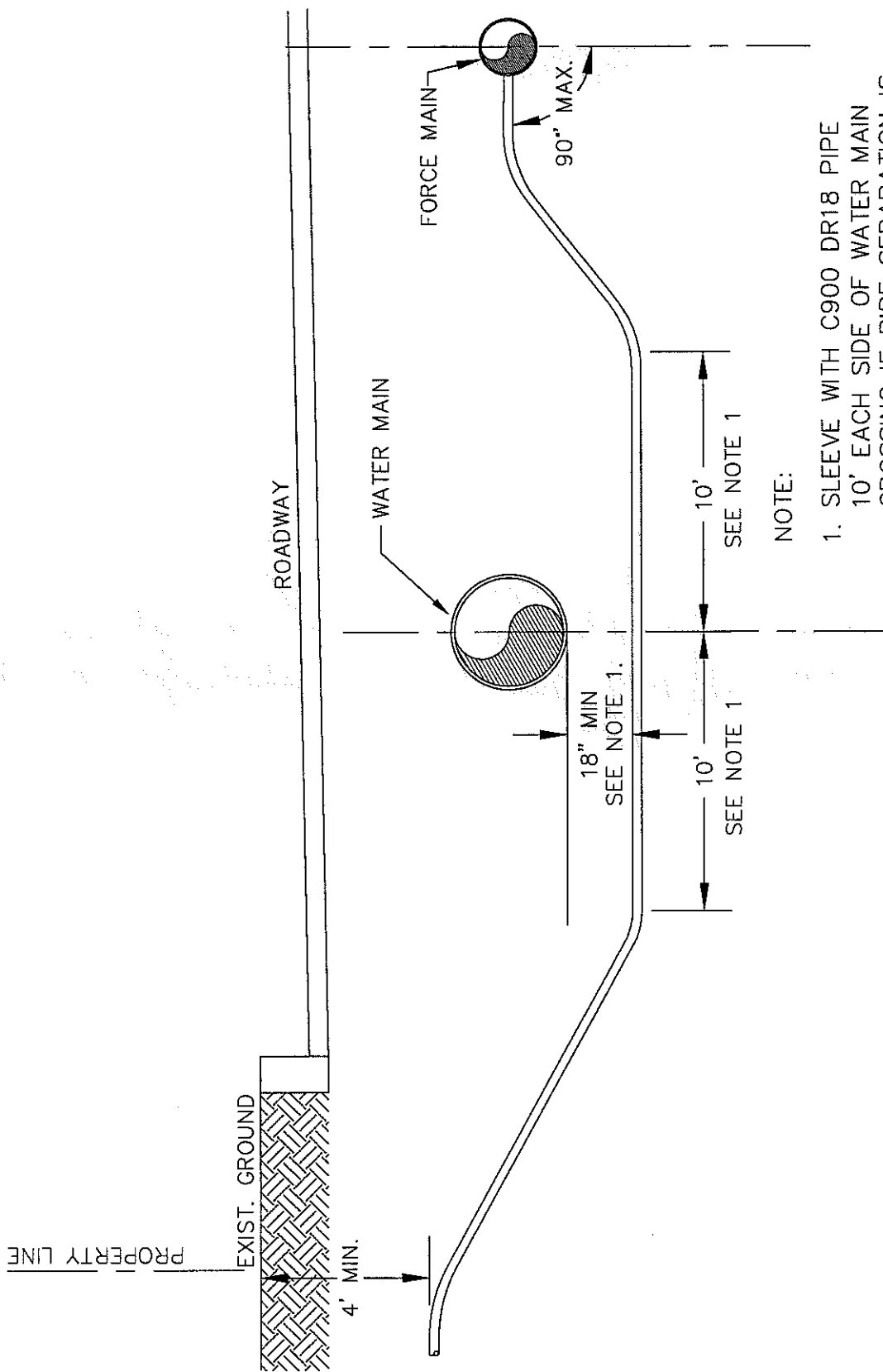
APPROVED: *Bruce Rawls*  
UTILITIES DIRECTOR  
DATE: 5/23/2006

STANDARD  
FLUSHING CONNECTION  
LOW PRESSURE SEWER SYSTEM

SHEET  
U-22

| NO. | DATE | BY | CKD. | APPR. | REVISION |
|-----|------|----|------|-------|----------|
|     |      |    |      |       |          |

SPOKANE COUNTY  
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SPOKANE, WA. 99206 477-3604



- NOTE:
1. SLEEVE WITH C900 DR18 PIPE  
10' EACH SIDE OF WATER MAIN  
CROSSING IF PIPE SEPARATION IS  
LESS THAN 18".
  2. PRESSURE SERVICE CONNECTION  
SHALL BE INSTALLED IN CONFORMANCE  
WITH SPOKANE COUNTY STANDARD  
PLAN U-21.



5-23-06

EXPIRES 8/20/08

DRAWINGS \ U-23

APPROVED: *Bruce Rawls*  
 UTILITIES DIRECTOR  
 DATE: 5/23/2006

STANDARD  
 PRESSURE SERVICE STUB DETAIL  
 FOR WATER MAIN CROSSING

SHEET  
 U-23

| NO. | DATE | BY | CKD. | APPR. | REVISION |
|-----|------|----|------|-------|----------|
|     |      |    |      |       |          |

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