SECTION 400 - CONSTRUCTION STANDARDS

Section 400 explains the construction standards that must be followed when building new roads or improving existing ones in Kootenai County. These rules make sure that roads are built safely and correctly from the very beginning—starting with clearing the ground, preparing the soil, placing rock layers, and installing the final pavement surface. By following these steps, contractors help ensure that new roads will last, drain properly, and stay safe for the traveling public. This section also describes the types of materials that must be used, how they should be tested, and when the Highway District needs to inspect the work. These requirements help prevent future problems like potholes, settling, cracking, or drainage failures. In short, Section 400 ensures that every road built within the Highway Districts meets consistent quality standards and performs well for years to come.

401. GENERAL

401.01 Construction work requiring observation must be scheduled with a minimum 24-hour notice during the District's normal working hours (which may vary between summer and winter). Additional section-specific requirements build upon this standard.

401.02 Construction acceptance requires documentation of Minimum Testing Requirements as outlined in Appendix 2.

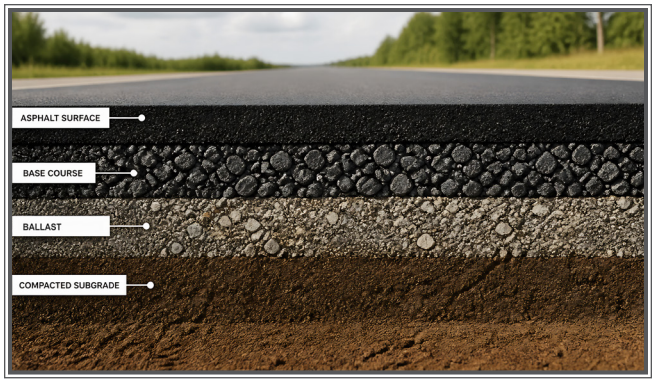
402. CLEARING AND GRUBBING

402.01 All stormwater and sediment control measures shall be in place and reviewed by the Highway District or their representative prior to any ground-disturbing activity.

402.02 Clearing and grubbing shall consist of the removal and disposal of all organic and other deleterious material from the road section. All material removed under clearing and grubbing shall be disposed of off the right-of-way and in compliance with the State and Local permits.

402.03 All denuded areas shall be hydroseeded at the end of the project.

403. SUBGRADE



403.01 The subgrade shall consist of natural materials no larger than 6 inches remaining after clearing and grubbing is performed and good construction material is remaining. The determination of the extent to which topsoil shall be removed shall be left to the discretion of the Director or their designated representative for the Highway District, who may require soil and compaction test results to document the acceptability for construction.

403.02 In solid rock excavation, the solid rock shall be excavated 6 inches below the finished subgrade elevation and backfilled with approved granular material.

403.03 Unstable subgrade conditions shall be remedied by subexcavation and backfilling with approved granular material under the direction of the Director or their designated representative. Geotextile fabric or additional drainage may be required by the Director or their designated representative if unstable subgrade conditions cannot be remedied to their satisfaction. The subexcavated surface shall be observed by the Director or their designated representative prior to the placement of any embankment or backfill material.

403.04 All construction shall be controlled by slope stakes or grade stakes that have been placed by a Professional Engineer or Surveyor licensed in the State of Idaho prior to the construction operations. Said slope stakes shall conform to the Typical Slope Stake Installation Method shown in Appendix 1. The Contractor may request approval for alternate methods of establishing grade control with wire lines, GPS or laser-controlled grading equipment, or other suitable methods. Slope or grade stakes are still required to verify computer-controlled grading equipment.

403.05 Subgrade shall be compacted to a density no less than 95 percent of an AASHTO T-180 Modified Proctor Density. All utility work within the road prism in fine grained soils (ML, CL, MH, CH, SM, GM, SC, GC) require fill to be placed in 12-inch maximum lifts only, tested at the time of placing and compacting, placement of material and compaction within 2 percentage points of optimum moisture and observed and tested with a full-time technician or engineer.

403.06 The subgrade shall be observed and approved by the Director or their designated representative prior to placing any ballast on the subgrade.

Prior to requesting observation of the finished subgrade, grade stakes set to finished subgrade elevation shall be in place on 50-foot stationing at centerline and shoulders unless a variance is granted and all compaction test reports submitted to the Highway District.

403.07 If fill material is used to bring the road structure up to subgrade elevation, fill material shall be 6-inch minus from Highway District approved sources. Material shall be granular aggregate or soil material free of organic or deleterious material capable of being compacted to subgrade density without pumping or rutting.

404. BALLAST

404.01 The ballast material shall be run through a crushing plant. Material that has only been screened will not be accepted. Base material may be substituted for ballast at Director discretion, meeting base material testing and placement requirements. The material shall be durable and shall meet the following gradations and testing requirements:

Why It Matters:

Proper road foundations reduce rutting, settlement, and long-term maintenance expenses.

SIEVE SIZE	% PASSING
4”	100
3”	98-100
2”	90-100
3/4”	70-90
#4	25-40
#200	5-9

CHARACTERISTIC	TEST METHOD	REQUIREMENT
Sand Equivalent	Modified Alternate Method No. 2 Pre Wet	If 5.0% or more of the material passes the No. 200 sieve Sand Equivalent is not required if less than 5.0% passes the No. 200 sieve
Fractured face	IdahoT-71	50% of aggregate retained on the No. 4 sieve shall have at least one fracture face

404.02 The ballast material shall be constructed in layers not to exceed 8-inches in thickness and shall be compacted using mechanical methods to at least 95 percent of the AASHTO T-180 Modified Proctor Density.

404.03 Observation of the ballast is necessary by the Director or their designated representative prior to the placing of base material. Prior to requesting observation of the finished ballast, compaction testing results must be submitted, and red top stakes set to finished ballast elevation shall be in place on 50-foot stationing at centerline and shoulders.

405. BASE

405.01 The crushed aggregate for the base course shall be 4-inches in depth after it has been compacted and shall comply with the following gradations and testing requirements:

SIEVE SIZE	% PASSING
1”	100
¾”	90-100
#4	40-65
#8	30-50
#200	3-9

CHARACTERISTIC	TEST METHOD	REQUIREMENT
Los Angeles Abrasion	AASHTO T-96	35% maximum loss
Sand Equivalent	AASHTO T-176 Modified Alternate Method No. 2 Pre Wet	30 minimum If 5.0% or more of the material passes the No. 200 sieve. Sand equivalent is not required if less than 5.0% passes the No. 200 sieve
Fractured face	Idaho T-71	60% off aggregate retained on the No. 4 sieve shall have at least one fracture face

405.02 The material shall be laid in one or more layers to develop the compacted depth of 4 inches minimum. Material shall be mechanically compacted by rolling to 95 percent of the AASHTO T-180 Modified Proctor Density. Care shall be taken to place the aggregate material in such a manner that it will have a uniform mixture throughout.

405.03 The finished base material must be observed and approved by the Director or their designated representative prior to placing the surface course.

Prior to requesting observation of the finished base material compaction testing results must be submitted, blue top stakes will be set to finished base elevations at 50-foot stationing on curves and on tangents at centerline and shoulders.

The finished base course surface shall be more than 1/2 of an inch below the edge of a straightedge 10-foot in length laid parallel to or perpendicular to the centerline of the roadway. In addition, the finished grade shall not deviate more than 1/4 of an inch at any point from the staked elevation, and provided further, the sum of the deviations from two points not more than 30 feet apart shall not exceed 1/4 of an inch.

Should patching of the base course be necessary in order to meet the above tolerances, it shall be performed using methods and aggregates approved by the Director or their designated representative.

406. SURFACING

> **Why It Matters:**
> *The asphalt surface is the public's most visible investment, but its performance depends heavily on proper placement, compaction, and quality control during construction.*

406.01 The surface type shall be hot mix asphalt concrete.

406.02 Equipment used for asphalt construction regardless of the type of surface treatment shall meet ITD's requirements in the current Standard Specifications for Highway Construction.

406.03 Hot Mix Asphalt Concrete

a. The hot mix asphalt concrete surfacing shall be one or more courses of Superpave Hot Mix Asphalt (HMA) in accordance with these Standards and in reasonably close conformity with the lines, grades, thicknesses, and typical cross sections shown on the project plans. The mix used for the HMA must be an approved asphalt mix design. Mix design characteristics must be submitted and approved by the applicable Highway District prior to its use. HMA shall meet the following requirements and shall be subject to the review of the applicable Highway District.

b. References

1. ITD Current Standard Specifications for Highway Construction – Current version
2. AASHTO Standard Specifications for Transportation and Methods of Sampling and Testing
3. WAQTC TM 8 – In-Place Density of Bituminous Mixes Using the Nuclear Moisture-Density Gauge

c. Materials

1. HMA shall be ITD SP3, ½-inch, designed in accordance with ITD Standard Specifications for Highway Construction, current edition.
2. Mix Design:
   i. The Contractor shall provide mix designs to the Highway District for review.
   ii. The Contractor's mix design shall develop the job mix formula for the project using an ITD-qualified laboratory and shall be stamped by a Professional Engineer licensed in the State of Idaho.
   iii. Mix designs shall be developed by an individual holding an ITD Superpave Mix Design Technician qualification and shall be submitted to the Highway District for review.
   iv. Mix designs may also have to be approved by ITD and/or an independent materials testing lab.

v. Recycled Asphalt Pavement (RAP) shall be as defined by ITD Standard Specifications. ITD's maximum RAP content per weight of the mix may be included as part of the job mix formula provided the mix meets all other requirements for plant mix.

vi. If RAP is used in the job mix formula, it shall conform to ITD's Category 1 RAP classification requirements, Section 720.07.

3. Asphalt Cement shall be PG 64-28 with binder adjustments meeting current ITD Standard Specifications for RAP content.

4. Aggregate for Plant Mix shall meet Section 703 of the ITD Standard Specifications, current edition.

5. Anti-Stripping Additive shall meet Section 702 of the ITD Standard Specifications, current edition.

6. Tack Coat for AC Pavement shall be applied in accordance with ITD Standard Specifications Section 401, current edition.

d. Workmanship

1. Verify that the areas to be paved are graded, compacted, and ready for paving.

2. Protect saw cut edges so the new pavement is placed against a straight, vertical surface.

3. Apply a thin, uniform asphalt tack coat to the surfaces of curbing, gutters, manholes, asphalt cement pavement, Portland cement pavement, and other structures that will abut the new pavement.

e. Hauling and Placing Asphalt Pavement

1. Apply tack coat in accordance with ITD Specification Section 405.03, current edition.

2. When necessary, each truck shall have a cover to protect the plant mix from weather in accordance with ITD Section 405.03, current edition.

3. Install work in accordance with ITD Section 405, current edition.

4. The Contractor shall overlap the joint edge 1 to 1.5 inches and bump back or trim the joint line overlap by raking to create a tight, smooth joint.

5. Place asphalt within eight hours of applying primer or tack coat.

6. The Contractor shall hand compact areas inaccessible to rolling equipment.

f. Pavement Surface Smoothness

1. Place pavement in accordance with the current ITD Standard Specifications for

Highway Construction Section 405.03. Surface smoothness shall comply with ITD Specification for a Schedule II project.

g. Field Quality Control

1. The Contractor shall submit a paving plan in accordance with ITD Specifications 72 hours prior to the pre-paving meeting for review.

2. Forty eight hours prior to placing plant mix, the Highway District, Contractor, Asphalt Supplier, and Quality Control/Quality Assurance personnel involved with the project shall hold a pre-operational paving meeting to discuss the means by which to achieve the highest quality surface.

3. Production Paving shall be in accordance with the current ITD Standard Specification and Supplements for Highway Construction.

4. Field review and testing will be performed in accordance with ITD and these standards.

5. Pavement Density and depth verification testing shall be completed using asphalt cores. A minimum of three (3) cores per paving day shall be tested. Completed density shall correspond to a range between 92.0 percent and 95.0 percent of maximum Theoretical Density for SP-2 to SP-6 asphalt mixes.

6. Pay Factor calculations in accordance with ITD Quality Assurance procedures shall be submitted to the District for consideration of paving acceptance.

h. Weather Limitation and Cutoff Dates

1. Conform to the following minimum temperatures for all plant mix pavement operations.

Air and Surface Temperature Limitations

Compacted Thickness of Individual Courses	Top Course	Leveling and Courses Below the Top Course
Less than 0.1 foot	60° F	50° F
0.1 foot to 0.18 foot	50° F	50° F
Over 0.18 foot	40° F	40° F

2. Hot mix asphalt pavement shall not be placed between October 15 and April 15.