Section 2
Project Application and Certification

2.0 PROJECT APPLICATION AND CERTIFICATION

The review process outlined below must be followed for all privately-developed utility and street projects that will be dedicated to the Town.

2.1 Purpose and Scope

A. Construction may not begin prior to Town approval of all applicable project permits, including the approval of utility and infrastructure plans.

B. Project permit application fees are assessed based on the current Town Fee Schedule.

C. The following summarizes the civil review process for development that includes the construction of public infrastructure:

1. All non-single family residential development is subject to FHMC 15.06 Site Plan Review. It is recommended to complete the site plan review process prior to submitting project permits for construction.

2. Conceptual drawings shall be submitted at the time of site plan review or land division applications.

3. All civil design plans shall be submitted and approved prior to the issuance of any construction project permits.

4. The Applicant shall submit a complete "Application to Construct" form with its initial construction plan submittal to the Town.

5. For any plan review submittal, or re-submittal, the Town shall be provided with a pdf electronic file and two hard copies of the construction plans, the Stormwater Site Plan, and the SWPPP. Partial submittal will be returned to the Applicant without review comments. After receiving the plan sets and reports, the CDP will respond in writing and include the plan review fee being charged for the project. Applicant is responsible to pay for all plan review fees in accordance with the Town's Fee Schedule.

6. Following review of the plans and reports, the Town will return a request for more information comment letter, to include a red line check of plans. The red line must be returned to the Town along with a set of corrected plans. A letter indicating how each of the review comments was addressed or a reason for not making the changes must be included with the resubmittal. If the red lines are not returned, or changes are not properly addressed, the review of plans will be delayed and/ or additional plan review fees may be charged.

7. Once the project plans and reports are complete, and all other Town requirements relating to the project have been completed, CDP will provide an approval letter and a set of plans with the Town's approval stamp signed. The Applicant will be responsible to distribute copies of the approved plans. A set of Town approved plans are required to be on the project site during construction. Approval of the plans shall not relieve the Owner or Applicant from any liability related to portions of the design which are not in conformance with these Standards or do not follow standard engineering practice.

8. The approval of the plans shall expire one year from the approval date shown on the plans. Upon expiration, the approvals may be extended for an additional year. The Town has the right to require the Applicant to revise the plans to reflect any current updated Standards prior to issuance of any extensions.

9. The Town provides review services only; it does not design the project for the Applicant. The Town reserves the right to increase plan review fees and/or refuse to review any project which is not designed in accordance with the Town of Friday Harbor's Engineering Design Standards.

10. The Applicant is responsible for the costs of all inspections, including Town inspections, material testing, and third party inspections. Town inspections will be charged in accordance with the Town's Fee Schedule.

2.2 Plan Permit Conditions

A. The issuance of a project permit shall not be construed to be a permit for, or an approval of, any design(s) which are not in conformance with these Standards or do not follow standard engineering practice, or be construed as an approval of any violation of the provisions of any other ordinance of the Town. Project permits presuming to give authority to violate or cancel the provisions of these Standards or other ordinances of the Town or do not follow standard engineering practices shall not be valid.

B. The issuance of a permit based on construction documents and other data shall not prevent the Town from requiring the correction of errors in the construction documents and other data.

C. At the discretion of the Town, any errors or omissions in the approved plans or information used as a basis for such approvals may constitute grounds for withdrawal of any approvals and/or stoppage of any or all permitted work. It shall be the responsibility of the Applicant or the Design Engineer to show cause why such work should continue, and make such changes in plans that may be required by the Town before the plans are re-approved.

2.3 Infrastructure Project Submittal Requirements

A. The Applicant shall fill out and submit with the construction plan submittal Attachment 2.1 CIVIL PLAN CHECKLIST.

B. Required for all projects:

1. Vicinity Map.
2. An index of plan sheets.
3. Title blocks including project name, street name, sheet limits (station numbers), type of improvement and whether improvements are public or private.
4. All design plans shall be prepared, stamped, and signed by a professional engineer licensed in the State of Washington. Plans shall include the Design Engineer's address and phone number.
5. All used symbols and line types shall be described in a legend to be located on a separate sheet at the beginning of the plan set or on each individual sheet.

6. Font and lettering shall be legible to be easily read and understood by the reviewer. Submitted plans not meeting these criteria will be returned to the Design Engineer to correct before the review process is started.
7. Road alignments with 100' stationing. Stationing at each point of curve, tangent and intersection with appropriate ties to existing road surveys and stationing, section corners, quarter corners, and horizontal control.
8. All existing utilities.
9. North Arrow.
10. Section, township, and range.
11. The datum used and all benchmarks shall refer to established control. The vertical datum shall be NAVD 88 and the horizontal datum shall be NAD83/91.
12. Right of way lines, width of proposed road, intersecting roads, and existing road improvements with dimensions.
13. All topographic features within right of way or future right of way limits and sufficient area beyond to resolve questions of setback, slope, drainage, access onto abutting property, and road continuations.
14. Identification of all roads and adjoining subdivisions.
15. Utility sheets shall be a minimum scale of 1"=40'. A larger 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.
16. Section and lot lines.
17. Easements – Provide dimensions and purpose for any proposed easements. Show recording information, purpose and width for any existing easements.
18. Other data necessary for the specific project.

C. Profile Elements (For drawings where a "profile" design is required).

1. Profile elements shall include the following:
   a. 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.
   b. 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'.
   c. On a grid of numbered lines, a continuous profile shall be shown for both existing and proposed improvements.
   d. Grade and vertical curve data, all profiles.

D. Sewer

1. Required for all projects
   a. Plan/profile and detail sheet(s) using design and drafting standards detailed in these Standards.
   b. Show service connection lines from public sewer lines to the property line of the lot to be serviced.
2. May be required
   a. Study showing adequate capacity in line for project flow.
   b. Easements with recording numbers.

E. Stormwater

1. Required for all projects
   a. Plan/profile and detail sheet(s) for design using design and drafting standards detailed in these Standards.
   b. Grading and drainage plan showing finished contour elevations.
   c. The Stormwater Site Plan, stamped by a Washington State licensed engineer. The Stormwater Site Plan shall be prepared in accordance with the 2019 Stormwater Management Manual for Western Washington.
   d. Show all 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 these Standards.
   e. Erosion and sediment control plan (ESC) with BMPs identified for stormwater control during and after construction. The erosion and sediment control plan is required for any project prior to issuance of any permits for the project. The ESC plan shall meet the requirements of the 2019 Stormwater Management Manual for Western Washington.
2. Based on the location and scope of the project, the Director may require additional studies. In most cases where stormwater facilities are proposed, a geotechnical report will be required.
3. May be required:
   a. Easements with recording numbers.

F. Water

1. Required for all projects
   a. Plan/profile and detail sheet(s) using design and drafting standards detailed in these Standards.
   b. Show service connection lines from public water main.
   c. Fire Marshal approval.
2. May be required
   a. Easements with recording numbers.
   b. Hydraulic study showing adequate fire flows and domestic service.

G. Street

1. Required for all projects
   a. Details including typical cross sections for all street plans and a detail for street restoration.
   b. Profiles for curbed roads shall show the tops of both curbs and the centerline clearly labeled.
   c. Signing and striping/channelization plan. Street sign type and placement must be clearly located on the plan. Both existing and proposed signs shall be included.
   d. Monuments are to be placed at every intersection, on the roadway centerline at the end of every plat, and at the center point of each cul-de-sac. The location of the monuments shall be clearly marked on the plan and plat.
   e. Bearings on the road centerline, keyed to an associated plat map.
   f. Curve data including radius, delta, arc length, and semi-tangent length, on all road centerlines and curb returns.
   g. All found and referenced survey monuments.
   h. Beginning, middle, and ending elevations of curb returns.

i. Pavement section design by a Washington State Licensed Engineer.

j. A traffic distribution letter shall be required for projects that generate more than 80 trips per day or peak traffic of 10 trips or more. The letter must be certified by a Washington State licensed engineer.

k. An impact traffic analysis maybe be required for projects that generate more than 80 trips per day or 10 peak trips day. The analysis shall be certified by a Washington State licensed engineer. Traffic Impact Analysis outline is provided in Section 1, Attachment 1.1.

H. Traffic Control

1. Prior to construction a project traffic control plan may be requested by the Town. The approved plans are subject to change by the Director as needed to accommodate traffic conditions in the field. During an emergency situation the Contractor may change the traffic control plan but if not in an emergency any changes proposed by the Contractor must be submitted to CDP for re-review. The Applicant will be responsible to ensure the approved traffic control plan is setup prior to construction, the traffic control is implemented as per the plan approved by the Director, and is maintained during the course of the project.

2.4 Warranty Bond

A. Prior to construction, the Applicant shall provide the Director with a copy of the Engineers Estimate or Bid Tabs for the construction activities associated with the project.

B. The Applicant shall provide the Town with a warranty bond in the amount specified by the Director. The term of the warranty bond shall be for 2 years from the date the Town provides the Notice of Substantial Completion. The bond must automatically renew until the warranty deficiencies have been corrected. Once all deficiencies have been completed at the end of the warranty period the Director shall issue a letter authorizing the release of the warranty bond.

2.5 Construction Certification

Construction for all private projects is initiated and coordinated through the CDP. Construction drawings shall be turned into final “As-built” record drawings.

A. Introduction

1. The procedures for construction certification are to foster consistent high quality projects and to facilitate the subsequent transfer of ownership of the finished improvement to the Town.

B. Project Coordination

1. Prior to the start of construction the Applicant will identify a Project Coordinator. The Project Coordinator shall be responsible for managing the day-to-day operations of the project including traffic control, Town requests, project safety, and overall coordination. The Project Coordinator shall be the contact for Town personnel.

C. Project Inspection/Certification

1. Prior to the start of construction the Applicant will identify the Project Engineer. The Project Engineer shall be a licensed Professional Engineer in the State of Washington. This Engineer or his/her representative shall be responsible to verify the project was constructed according to the Town's Standards and the construction methods resulted in a high quality product. An outline of Construction Phase Services the Applicant is to provide is presented in Attachment 2.2 within this document.
2. Town staff will make site visits intermittently during the construction of the project to verify progress and will periodically discuss inspection activities with the Project Coordinator.
3. The Project Engineer may be the Project Coordinator.

D. Project Reporting

1. The Project Engineer will submit to CPD a weekly progress report. This will include a narrative of the construction completed this week, daily inspection reports and any field testing reports.
2. Prior to project acceptance the Project Engineer will submit a certification to CDP. All lab and field testing reports shall be included. Test reports that show failing tests must have follow-up test reports that are acceptable. Any nonconforming issues shall be fully documented to include resolution. Construction as-builts shall be provided by the Project Engineer and submitted to CDP. The record drawings shall also be submitted as per Section 2.5.I.

E. Construction Complaints

1. Complaints from citizens regarding the project shall be documented by the Project Coordinator and resolved. Town personnel shall be notified of such complaints.

F. Utility Inspections

1. On all public and private utility construction for development, inspections will be performed by the Project Engineer or designated representative. The inspection 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 Project 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 Town's Standards.
    a. Conformance of all construction materials with Town Standards shall be verified prior to installation.
    b. Utility trenches shall be inspected for proper dimensions and pipe zone clearances prior to placement of pipe.
    c. The placement and compaction of the pipe zone material and bedding shall be inspected.
    d. The pipe joints shall be inspected visually for proper insertion.
    e. Horizontal alignment and grade of the pipe shall be checked for conformance to the Standards prior to backfilling of the trench.
    f. Tees/taps and stubs shall be inspected for correct installation prior to backfilling of the trench.

g. Accurate measurements shall be made and recorded to facilitate the reestablishment of utility service tee/tap locations and stub end locations. The placement of the required stub markers shall be verified.
h. Manholes and vaults shall be inspected for proper materials, location, assembly, and installation.
i. Trench backfill operations shall be observed and compaction tests shall be performed. Minimum requirements for backfilling shall be as set forth in Attachment 2.3 within this document.
j. Minimum material sampling and testing frequencies as listed in Attachment 2.3 Minimum Sampling and Testing Frequencies shall be completed.
k. All public and private utility lines that connect to the Town's public system shall be tested until passing results have been approved by Town staff. The testing shall be performed by the Contractor (except as noted below) and observed by Town staff. The Project Coordinator shall schedule and provide notice to the Town a minimum of 2 business days. The Town may require additional time for notification of the testing.
l. All sewer testing shall follow completion of acceptable trench backfilling. Sewer line testing shall include low pressure air testing of the lines, mandrel testing and television inspection (see Attachment 2.4 for TV Inspection Protocol of Sewer).
m. Waterline testing will be performed after the pipeline has been backfilled sufficiently to prevent movement under pressure. Prior to connecting the new lines to the existing system, the new lines and services must pass pressure testing and bacteria testing. The Project Coordinator must obtain approval from the Water Department prior to making the connection to the existing system.
n. Daily inspection reports shall be prepared, summarizing construction activities, contractor work force and work period, testing results, problems encountered, and other pertinent information.
o. The Project Coordinator or the Project Engineer shall notify Public Works 2 business days in advance of starting construction of the new utilities and shall provide a generalized schedule for the progress of the work. Town personnel will make occasional site visits to inspect the work and to ensure the Project Engineer is properly performing inspection. If it is discovered during the Town inspection of the project that the Contractor is performing substandard work or the level of inspection by the Project Engineer is not satisfactory the Town will inform the Project Coordinator or Applicant and if the problem is not corrected immediately the Town will either revoke the permit or provide full time inspection by Town forces at the option of the Director. The Applicant will bear the cost of all inspections, material testing, and third party inspections required to certify the project, which includes the Town's full- time inspection as may be required by the Director. Public Works shall have access to all construction inspection records and reports.

G. Changes During Construction

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

2. When changes to the design are necessary, the Applicant shall be responsible for coordinating the proposed design changes with the Design Engineer. The Design Engineer shall forward the proposed plan change, together with related calculations, to the CDP for review and acceptance prior to construction.

H. Project Acceptance of Complete Construction (Refer to Attachment 2.5 Project Acceptance Flow Chart)

1. At the completion of the project the Project Engineer shall make a final inspection to determine if the project is in substantial conformance with the approved construction documents or there are deficiencies in the work.
2. Once all deficiencies are corrected to the satisfaction of the Project Engineer a final inspection with the Project Engineer and Public Works staff shall be scheduled.
3. Once Public Works is satisfied, with the work as determined in the final inspection meeting, the Project Engineer shall submit a certification package, as described in Attachment 2.6, with a letter requesting final acceptance of the project. If the Town finds the project complete, a Notice of Substantial Completion shall be sent to the Project Engineer and the warranty period shall start. Any remaining work shall be completed pursuant to an agreed schedule with the Applicant responsible to correct damage done by a third party (e.g., utility companies, builders, landscapers, etc.).
4. If the certification package is incomplete or otherwise unacceptable, the Project Engineer shall be required to provide the missing documents before the Town will issue the Notice of Substantial Completion. The Town will review the completed certification package and issue a Notice of Substantial Completion, the Town will provide the applicant with copy, if appropriate. Once the Town authorizes Substantial Completion the warranty period shall commence.

I. Record Drawings

1. During construction the Project Engineer (or Surveyor) shall record any changes to the Town approved plans. The approved plans should be modified to show all changes made during construction. The modified plans shall be labeled “Record Drawings” and stamped and signed by the Engineer and have the following statement: “I have reviewed the construction of this project’s improvements and to my knowledge find it to be in substantial conformance with the accepted plans and the Town of Friday Harbor‘s Standards except as noted.”
2. The completed record drawings shall be submitted to CDP as an electronic PDF file and in a CAD.dwg file, compatible with the Town’s current system. The CAD drawing shall include two existing local monuments, surveyed to correspond with the project’s coordinate system.

2.6 Penalties

A. Failure to comply with the plan review procedure outlined above may be cause for withholding or withdrawing approval of plans, forfeiture of bond or non-acceptance of work by the Town.

ATTACHMENTS

Attachment 2.1- Civil Plan Checklist
Attachment 2.2 – Construction Phase Services Outline
Attachment 2.3 – Minimum Sampling and Testing Frequencies
Attachment 2.4– TV Inspection Protocol of Sewer
Attachment 2.5 – Project Acceptance Flow Chart
Attachment 2.6 – Final Certification Checklist – Sample

ATTACHMENT 2.1 – CIVIL PLAN CHECKLIST

SUBMITTAL ITEMS

(__) Plan Review Application
(__) Plans
(__) Geotechnical Report
(__) Sanitary Sewer Calculations
(__) Stormwater Site Plan Hydraulic Study
(__) Easements and/or Dedication Deeds
(__) Specifications

GENERAL STANDARD ITEMS

(__) Vicinity Map
(__) Legend (APWA Standard Symbols)
(__) North Arrow
(__) Scale Bar
(__) Datum-Bench Mark Elevation and Location (vertical datum shall be NAVD 88 and horizontal datum shall be NAD 83/91)
(__) Title Block
  (__) Title:
  (__) Design By:
  (__) Drawn By:
  (__) Date:
  (__) Checked By:
  (__) Sheet Number of Total Sheets:
(__) Section, Township and Range (every plan/profile sheet)
(__) Engineers Stamp (signed and dated)
(__) Project Title (cover sheet)
(__) Utility System Map (showing all proposed utilities on one drawing)
(__) General Notes – All Projects DWG U-0
(__) Revision Block
(__) Approval Block

APPROVED FOR CONSTRUCTION

BY: _____ DATE: _____
TOWN REPRESENTATIVE _____

APPROVAL EXPIRES: _____

CIVIL PLAN STANDARD ITEMS

(__) Centerline and Stations (Stationing every 100 feet)
(__) Edge of Pavement and Width
(__) Right-of-Way and Easements
(__) Proposed Survey Monumentation Locations and Details
(__) Sidewalk and Width
(__) Roadway Sections

(__) Existing Utilities (above and below ground)
(__) Adjacent Property Lines, Ownership, Parcel Number, and Street Address
(__) Identify Street Names, Right-of-Way, Lots
(__) Identify/Match Existing Sheet Numbers and Station
(__) Easements, Width and Type
(__) Define Survey Baseline
(__) Stations for Structures
(__) Flow Direction Arrows

PROFILE STANDARD ITEMS

(__) Profile Grades (decimal FT/FT.)
(__) Existing Ground
(__) Scale (horizontal and vertical)
(__) Stationing
(__) Vertical Elevation Increments
(__) Existing Utilities (if available)

WATER

Plan View:

(__) System Map (1"=300') showing existing and proposed with line size, valves, and hydrants
(__) Existing Utility Conflicts
(__) Fixtures (need horizontal and vertical control)
    (__) Fire Hydrants (at all intersections)
    (__) Blowoff (at end of line)
    (__) Vacuum and Air Release Valve When Required
(__) Tees, Crosses, Elbows, Adapters and Valves Need Coupling Type, Meter Locations
(__) Valves (2 each tee, 3 each cross)
(__) Fire Department Connection
(__) Thrust Blocking Required at all Fittings Including In-Line Valves
(__) Distance from Sewer
(__) Service to Each Lot (include open tracts)

Profile View:

(__) Existing Utility Crossings
(__) Show Fixtures (tees, crosses, hydrants)
(__) Show Valves and Couplers
(__) Size of Water Main
(__) Length of Water Main in LF
(__) Cover Over Pipe
(__) Grades

Misc.:

(__) Detail Sheet
(__) General Notes – Water (DWG W-0)

STORM SEWER

Drainage Report:
(__) Cover Sheet
(__) Table of Contents
(__) Section 1 – Proposed Project Description
(__) Section 2 – Existing Conditions
(__) Section 3 – Infiltration Rates/Soils Report
(__) Section 4 – Wells
(__) Section 5 – Fuel Tanks
(__) Section 6 – Subbasin Description
(__) Section 7 – Analysis of the 100-Year Flood
(__) Section 8 – Aesthetic Considerations for Facilities
(__) Section 9 – Downstream Analysis
(__) Section 10 – Covenants, Dedications, Easements
(__) Section 11 – Homeowners – Articles of Incorporation
(__) Project Engineers Certificate
(__) Facility Summary Form
(__) Engineer's Estimate

Erosion Control Plan Report:
(__) Section 1 – Construction Sequence and Procedure
(__) Section 2 – Trapping Sediment
(__) Section 3 – Permanent Erosion Control and Site Restoration
(__) Section 4 – Geotechnical Analysis and Report
(__) Section 5 – Inspection Sequence

Maintenance Report:
(__) Required Type and Frequency of Long-Term Maintenance Organization
(__) Frequency of Sediment Removal
(__) Cleaning of Catch Basins
(__) Vegetation Control
(__) Annual Cost Estimate of Maintenance

Site Map:
(__) Existing Topography at Lease 50 Feet Beyond Site Boundaries
(__) Finished Grades
(__) Existing Structures within 1,000 Feet of Project Boundary
(__) Utilities
(__) Easements, Both Existing and Proposed
(__) Environmentally Sensitive Areas
(__) 100-Year Flood Plain Boundary
(__) Existing and Proposed Wells within 1,200 Feet of Proposed Retention Facility
(__) Existing and Proposed Fuel Tanks
(__) Existing and Proposed On-Site Sanitary Systems within 100 Feet of Detention/Retention Facilities
(__) Proposed Structures Including Roads and Parking Surfaces
(__) Lot Dimensions and Areas
(__) Proposed Drainage Facilities and Sufficient Cross-Sections and Details to Build

Plan View – Conveyance System:
(__) Station and Number at Each Manhole/Catch Basin
(__) Manhole/Catch Basin Type and Size
(__) Manhole/Catch Basin Rim Elevation
(__) Flow Direction with Arrow on Pipe/Channel
(__) Type and Size of Pipe
(__) Length of Pipe in Linear Feet

Profile View – Conveyance System:

(__) Station and Number at Each Manhole/Catch Basin
(__) Rim Elevation
(__) Invert In and Out
(__) Length of Pipe in Linear Feet
(__) Grades (FT/FT)
(__) Design Velocity

Erosion Control Drawing:

(__) Soil Types
(__) Locations of Soil Pits and Infiltration Tests
(__) Construction Entrance Detail
(__) Silt Fence and Traps
(__) Mulching and Vegetation Plan
(__) Clearing and Grubbing Limits
(__) Existing and Finished Grade
(__) Details and Locations of all BMPs Recommended
(__) Location and Details of Temporary Sediment Ponds

Misc.:

(__) Detail Sheet
(__) General Notes – Storm

STREET

Plan View:

(__) Station PC, PT, PI and Intersections
(__) Curve Information Delta, Radius, Length and Tangent
(__) BCR and ECR (Begin Curb Radius, End Curb Radius)
(__) Identify All Field Design Situations
(__) Monuments at Each Intersection
(__) Typical Sections
(__) Pavement Marking Details with Station and Offset
(__) Sidewalks
(__) Driveway Approach
(__) Handicap Ramps-Detail and Type
(__) Lighting
    (__) Station and Offset to Fixtures
    (__) Pole Type, Including Manufacturer and Model Number
    (__) Mounting Height, Arm Length, Anchor Bolt Size and Pattern
    (__) Power Source
        (__) Wire Size, Type, Conduit
        (__) Line Loss Calculations
    (__) Luminaire Type, Lamp Wattage
    (__) Location of Service Disconnects
    (__) J-Box Location (include station and offset)

Profile View:

(__) Vertical Information VPI, BVC, EVC, Low Point, High Point
(__) Show Grades in Decimal Form with (+ or -) Slope
(__) Super Elevated Roadways
    (__) Detail-Show Transitions
    (__) Special Detail Showing Gutter Flowing Adequately

Misc.:

(__) Detail Sheet
(__) Curb Returns Showing Ramps Meeting ADA Requirements, Flow Line Spot Elevations and Direction of Flow
(__) Street and Lighting General Notes
(__) Signing-Temporary and Permanent
(__) Channelization
(__) Location of Cluster Mailboxes
(__) Pavement Design, Stamped by Licensed Engineer

ATTACHMENT 2.2 – CONSTRUCTION PHASE SERVICES

Required items to be completed by the Project 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 Line and Grade/Material Quality.

B. Utility Pipe
- Full time inspection initially, until the on-site inspector has verified the contractor's methods are within acceptable standards for trench excavation, pipe zone material placement, pipe installation, and trench backfill. Once the on-site inspector can certify the contractor's method inspection time may be reduced but testing frequencies, as per Attachment 3, must be adhered to. In no case shall the on-site inspection be reduced to below half time.

II. Review and approval of changes to approved plans including approval through the Public Works Department if necessary.

III. Record keeping and weekly reporting to the Town.

IV. Project acceptance of construction (see Attachment 3).

V. As-built survey/record drawings and side sewer reports.

VI. Certification report.

Required Items to be completed by Applicant's designated Project Engineer:

I. Pre-Construction meeting.

II. Oversight of Construction staking (all curb, curb and gutter, and roadway alignment and grade shall be staked by a Washington State licensed surveyor).

III. General project administration, coordination, and scheduled monitoring.

IV. Traffic and dust control.

V. Coordinate erosion control inspection as required by the Washington State Department of Ecology.

VI. Response to construction complaints and resolution of complaints.

VII. Coordinate Documentation by a Washington State licensed surveyor.

ATTACHMENT 2.3 – MINIMUM SAMPLING AND TESTING FREQUENCIES

Earthwork

Item	Location	Test	Testing Frequency
Undisturbed Native Soil	Structures	In Place Density[3]	Two random tests in building footings and two tests on subgrade within building line.
		Moisture Density Relationship (Modified Proctor)	One test and any time material type changes.
Fills and Backfills	Structures (adjacent to)	In Place Density[3]	One test per structure Backfills per 2,000 sq. ft. taken 12 inches below finished Grade.
		Moisture Density Relationship (Modified Proctor)	One test and any time material type changes.
Subgrades	Site	In Place Density[3]	One test per lift per 2,500 sq. ft.
		Moisture Density Relationship (Modified Proctor)	One test and any time material type changes.
Embankments or Borrow	Any	In Place Density[3]	One test per lift per 500 cubic yards placed.

Trenching

Item	Test	Testing Frequency
Pipe Bedding	Gradation[1]	One for each material source.
	Moisture Density Relationship (Modified Proctor)	One test and any time material changes
Trench Backfill	Gradation[1]	One for each material source.
	In-Place Density[1][2][3][4]	One every 500 feet of trench and every 2 feet in depth of backfill material.
	Moisture Density Relationship (Modified Proctor)[3]	One prior to start of backfilling operations, one every 20 densities and any time material type changes.

Aggregate Materials

Item	Test	Testing Frequency
Crushed Surfacing Base Course	Gradation, SE and Fracture	1 – 2,000 TN.
	Density[1]	One test on every lift on material placed at a frequency of 250 square yards of completed area.
	Moisture Density Relationship (Modified Proctor)	One test and any time material changes
Crushed Surfacing Top Course	Gradation, SE and Fracture	1 – 2,000 TN.
	Density[1]	One test on every lift on material placed at a frequency of 250 square yards of completed area.
	Moisture Density Relationship (Modified Proctor)	One test and any time material changes

Hot Mix Asphalt

(Testing will be completed by the Town. Applicant shall reimburse the Town for testing cost.)

Item	Test	Testing Frequency
HMA Project Quantity ≤ 800 tons	Rice Density	1 – project.
HMA Project Quantity > 800 tons	Rice Density, Gradation, Asphalt Binder Content and Percent Air Voids (Va)	1 – 1,000 TN.[5]

Hot Mix Asphalt Aggregate[9]

Item	Test	Testing Frequency
Aggregate	SE, Fracture	1 – 2,000 TN.
Blend Sand	SE	1 – Project.
Mineral Filler	Sp. G and PI	Certificate.

PCC Paving

Item	Test	Testing Frequency
Course Aggregate[7]	Gradation	1 – 1,000 CY.
Fine Aggregate[7]	Gradation	1 – 1,000 CY.
Combined Aggregate[7]	Gradation	1 – 1,000 CY.
Air Content[10]	Air	Each Day; First truck and each load until two successive loads meet specification.

Item	Test	Testing Frequency
Cylinders	Compressive Strength (28 Day)	1 – 500 CY.
Beam	Flextural Strength (14 Day)	1 – 500 CY.
Core	Density Thickness	1 – 500 CY. 1 – 500 CY.
Cement[6]	Chemical and Physical Certification	

PCC Structures (All PCC except PCC Paving)

Item	Test	Testing Frequency
Course Aggregate[7][8]	Gradation	1 – 1,000 CY.
Fine Aggregate[7][8]	Gradation	1 – 1,000 CY.
Combined Aggregate[7][8]	Gradation	1 – 1,000 CY.
Consistency[10]	Slump	Each Day; First truck and each load until two successive loads meet specification.
Air Content[10]	Air	Each Day; First truck and each load until two successive loads meet specification.
Cylinders (28 Day)[8]	Compressive Strength	1 – 50 CY.
Cement[6][8]	Chemical and Physical Certification	
Grout	Compressive Strength	1 set/day.

(1) All acceptance tests shall be conducted from in-place samples.

(2) Additional tests shall be conducted when variations occur due to the Contractor's operations, weather conditions, site conditions, etc.

(3) All compaction shall be in accordance with the Compaction Control Test of WSDOT Specification Section 2-03.3(14)D. The nuclear densometer, if properly calibrated, may be used for the required testing frequency and procedures. The densometer shall be calibrated and is recommended for use when the time for complete results becomes critical.

(4) Depending on soil conditions, it is anticipated that compaction tests will be required at depths of two feet above the pipe and at each additional two feet to the existing surface plus a test at the surface.

(5) A minimum of three samples, on a random basis, shall be taken and tested.

(6) Cement may be accepted by the Town based on the Manufacturer's Mill Test Report number indicating full conformance to the Specification.

(7) The frequency for fine, course, and combined concrete aggregate samples for PCC Paving and PCC Structures shall be based on the cubic yard (CY) of concrete.

(8) Commercial concrete will be accepted with Certificate of Compliance.

(9) Hot mix asphalt aggregate tests are not required for HMA that has a project quantity of $\leq$ 400 tons.

(10) Project Engineer representative to witness each test.

ATTACHMENT 2.4 – TOWN OF FRIDAY HARBOR PROTOCOL FOR TELEVISION INSPECTION OF SEWER

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) The applicant shall inspect the new sanitary sewer by use of a television camera prior to installation of the roadway base. At least 1 week prior to the desired pre-paving television inspection, the Project Engineer shall notify the Wastewater Treatment Department.

b) Prior to the television inspection the applicant shall clean, pressure test and mandrel test the pipe. The applicant shall be responsible for flushing and cleaning the pipelines in preparation for the inspection, plugging upstream manholes and managing wastewater flows in order to complete the inspection. In addition, manholes will need to be accessible by the TV van. Backfill must be in placed around the cone sections of the manholes.

c) The television inspection requirements shall include the provision of:

A color DVD television camera with a pan and tilt capacity in order to view all main lines, lateral lines, and structures including channels.

A dye solution to be introduced in sufficient quantity to travel from the structure that is the highest point of inspection to the downstream terminus of the inspection limits. Red or purple dye shall be used for PVC pipe and green dye for ductile iron and concrete pipe.

A 1-inch reference ball shall be mounted to the camera in order to drag along the bottom of the pipe during the entire inspection procedure.

Linear measurement references to be measured from the center of the beginning structure to the center of the next inline structure and include the direction of flow. The locations of lateral pipes and all distinctive pipe conditions shall be referenced to the centerline of the beginning structure. All structure references shall utilize the designated structure reference numbers shown on the Plans.

d) The following television inspection information shall be provided to the Wastewater Treatment Department:

A clear DVD which encompasses the limits of the inspection area and including all reference data as described herein. A tape reference time and date for the start of each run shall also be indicated.

A written report shall be provided corresponding to the taped inspection and including all reference data as described herein. The report shall consist of a written narrative of all distinctive pipe conditions including ponding areas in excess of 1/4 inch.

2. REVIEW OF PRE-PAVE TELEVISION INSPECTION

a) The Wastewater Treatment Department will review the TV inspection and written report submitted by the Project Engineer. The written report shall identify any required repairs. Bellies greater than 1/4 inch are considered a deficiency.
b) The TV inspection video shall be made available to the Contractor if requested.

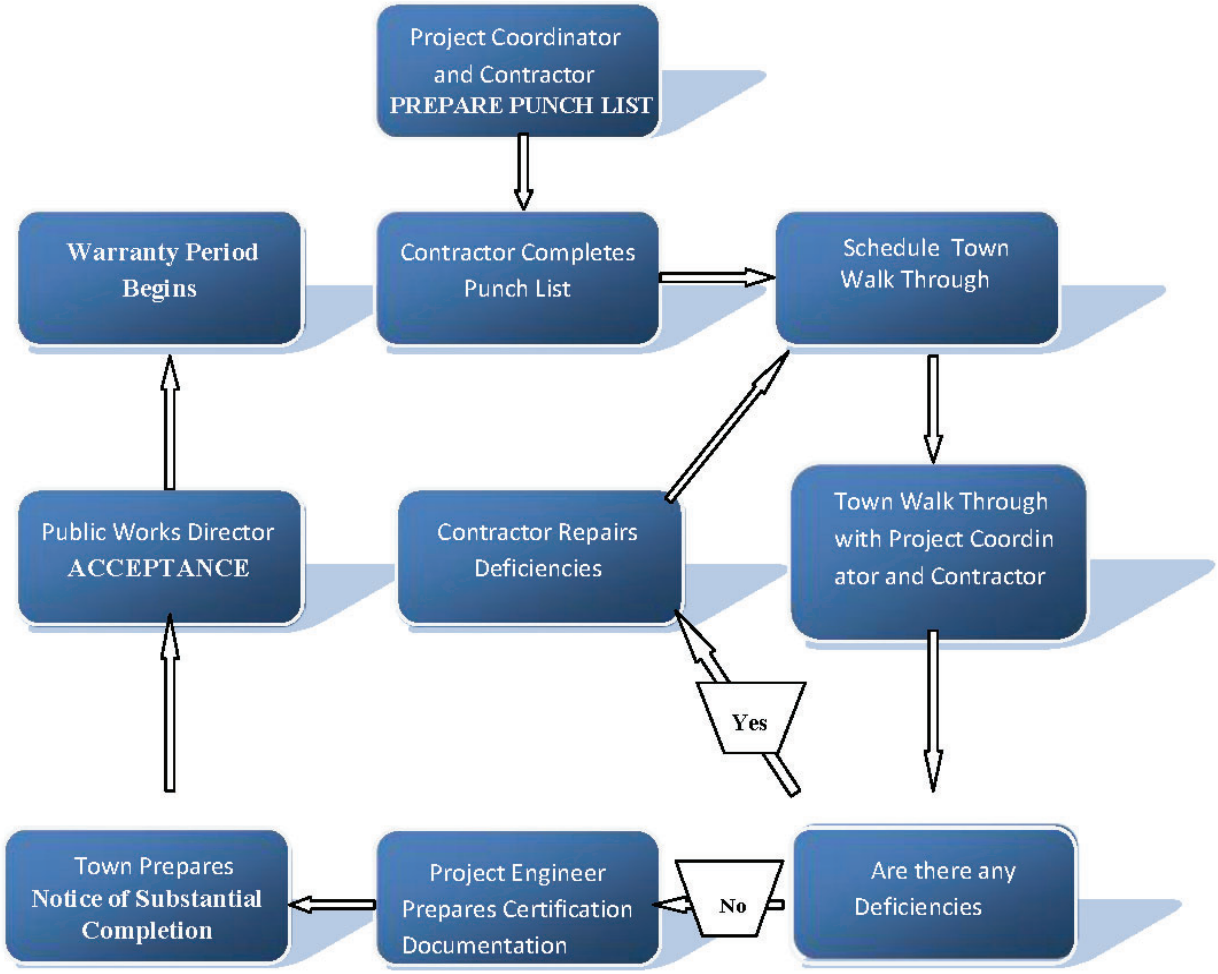
3. TV ACCEPTANCE

a) If the Wastewater Treatment Department identifies any deficiencies the Contractor shall make the repairs, as necessary, at their own cost.
b) Once the Contractor completes the repairs the applicant shall re-TV the lines.
c) The Wastewater Treatment department shall report to the Public Works Director once they find the sewer line acceptable.

4. CONNECTION TO THE NEW SEWER MAIN

a) No service connection shall be allowed until the new sewer lines have been accepted by Public Works.
b) For acceptance the sewer lines shall pass pressure test, mandrel test and TV inspection.

ATTACHMENT 2.5 – PROJECT ACCEPTANCE FLOW CHART



ATTACHMENT 2.6 – FINAL CERTIFICATION CHECKLIST – SAMPLE

Project:

Certificate Head Letter:
- Statement of intent to certify the project
- PE Stamp and Signature

Record Drawings Electronic Drawings
- PE Stamp and Signature
- Lettered certification statement

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
  - Embankment
  - Subgrade
  - Crushed Rock Lifts
- Material Documents: Field and Laboratory Tests:

	Field Test		Lab Test	
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:
  - Erosion Control Measures:
  - Drywells:
  - Gutter Inlets:
  - Culverts:
  - Sidewalk Vaults:
  - Drainage Ditches:
  - Swale Volume:
  - Other:
- Incoming / Outgoing Correspondence:

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