



Indian Health Service
Sanitation Facilities Construction Program
19 November 2013
Technical Webinar: Specifications



<http://www.dsfc.ihs.gov>

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What Are Specifications?

- A detailed description or assessment of requirements, dimensions, materials, etc., as of a proposed building, machine, bridge, etc.

Why do we Need Specifications?

- To ensure that the sanitation facilities that we design get constructed properly and perform the way they were designed



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Specification Types/Formats:

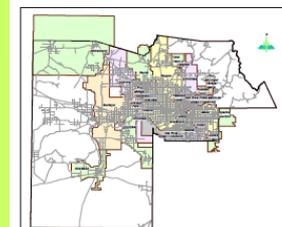
- Technical Provisions
- Construction Specifications Institute (CSI)
- State/City/County Specifications
 - Maricopa Association of Governments (MAG) Specifications



2013 Revision to the
2012 Edition



**Uniform Standard
Specifications
and Details for
Public Works
Construction**



Sponsored and Distributed by the



January 2013



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Specification Types/Formats Currently Used in IHS

Aberdeen

Technical Provisions: have standard specifications that are regularly updated. Changes are made using “track changes” feature for project specific needs. Moving towards CSI.

Alaska

CSI Specifications: Have master specs for engineers to start from, but each engineer edits the specs for their job specific needs.

Albuquerque

Technical Provisions: have standard specifications & details that are used exclusively. Modifying specifications are used if project specific changes are needed



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|--------------------|------------------|
| ▶ Aberdeen Area | ▶ Nashville Area |
| ▶ Alaska Area | ▶ Navajo Area |
| ▶ Albuquerque Area | ▶ Oklahoma Area |
| ▶ Bemidji Area | ▶ Phoenix Area |
| ▶ Billings Area | ▶ Portland Area |
| ▶ California Area | ▶ Tucson Area |



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Specification Types/Formats Currently Used in IHS

Bemidji	<u>CSI Specifications</u> : Have standard specifications. Track recommended changes. Update yearly. Maintain library of non standard specifications.
Billings	<u>CSI Specifications</u> : Have standard specifications for scattered sites. Use CSI specifications for community projects, but they aren't standardized.
California	<u>CSI Specifications</u> : Not standardized. Engineers make changes as needed.



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Specification Types/Formats Currently Used in IHS

Nashville	<u>Technical Provisions</u> : Northern District <u>CSI</u> : Southern District Not standardized.
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Navajo	<u>Technical Provisions</u> : Have a standard spec committee. Standardized.
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Oklahoma	<u>CSI Specifications</u> : Have standard specifications for scattered sites and simple community projects. More complex projects don't have standardized specifications
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Phoenix	No standard specifications. Some Tribe's adopted MAG specs.
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Specification Types/Formats Currently Used in IHS

Portland

Technical Provisions: Standardized for scattered sites.
CSI: Used for community projects. Not standardized. Maintain a library.
Engineers modify specs as needed.

Tucson

Technical Provisions: standardized specifications and details. Periodically modified. Sometimes modifying specifications are used, sometimes field engineers just edit the specifications.



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Benefits of Standard Specifications:

- Consistency
- Less time for field engineer preparing specifications
- Less time for DE's & Area staff reviewing specifications
- Contractor familiarity
- Ensures that most items are covered





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Drawbacks of Standard Specifications:

- Engineers may not read the specifications often enough
- Complacency – engineers may assume that the standard specification is perfect and not look for ways to improve the specifications for the sanitation facilities that we construct



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Specifications to Consider Standardizing:

- Trenching & Excavation
- Concrete
- Water Mains & Water Service Lines
- Sewer Mains & Sewer Service Lines
- Utility Roadway Crossing (Boring or Open Cut)
- Septic Systems (ST/DF, ST/Eljen, ST/Mound, etc.)
- Individual Lift Stations
- HDPE Water Mains
- Water Tanks
- Fencing
- Sewer Lift Stations & Force Mains
- Individual & Community Wells



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More Difficult Specifications to Standardize (Consider Library Approach):

- Pumphouses
- Water/Wastewater Treatment
- Booster Stations





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Albuquerque Area Approach to Standard Specifications & Details:

- Need a champion to start the process & see it through
- A small team was assembled in ~2004 with a leader to review all specs and details
- Input was sought and received from all engineers and technicians
- Supply houses were contacted to get the latest model numbers
- Draft set of standard specifications and details was sent to engineers and technicians for review and comment
- Albuquerque Area Standard Specifications & Details were published in June 2005



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AAIHS/OEHE SANITATION FACILITIES CONSTRUCTION TECHNICAL PROVISIONS



JUNE 2005

SECTION 01 TRENCH EXCAVATION & BACKFILL FOR
PIPELINES AND APPURTENANT STRUCTURES

SECTION 02 CONCRETE

SECTION 03 REINFORCING STEEL

SECTION 04 WATER TRANSMISSION AND DISTRIBUTION
MAINS

SECTION 05 WATER SERVICE LINES

SECTION 06 GRAVITY SANITARY SEWERS

SECTION 07 SEWER SERVICE LINE

SECTION 09 INDIVIDUAL WELL DRILLING AND
DEVELOPMENT

SECTION 10 INDIVIDUAL HOUSEHOLD WATER SYSTEMS

SECTION 11 ROADWAY, RAILROAD, AND SPECIAL UTILITY
CROSSINGS



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AAIHS/OEHE SANITATION FACILITIES CONSTRUCTION TECHNICAL PROVISIONS



JUNE 2005

SECTION 12 NON-AGGREGATE SEWAGE DISPOSAL SYSTEMS

SECTION 13 INDIVIDUAL PRESSURIZED MOUND SEWAGE DISPOSAL SYSTEM

SECTION 14 INDIVIDUAL PRESSURIZED IN-DRAIN MOUND SEWAGE DISPOSAL SYSTEMS

SECTION 15 PEAT BIOFILTER SEWAGE DISPOSAL SYSTEM

SECTION 16 SINGLE RESIDENCE LIFT STATION

SECTION 18 CONCRETE CISTERN WATER SYSTEM

SECTION 19 CONCRETE CISTERN WITH CONSTANT PRESSURE WATER SYSTEM

SECTION 25 PRESSURE REDUCING VALVE AND MANHOLE

SECTION 28 HIGH DENSITY POLYETHYLENE (HDPE) PIPE & FITTINGS



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AAIHS/OEHE SANITATION FACILITIES CONSTRUCTION TECHNICAL PROVISIONS



JUNE 2005

SECTION 31 WELDED STEEL WATER STORAGE TANK AND FOUNDATION

SECTION 34 COATINGS FOR WELDED STEEL WATER STORAGE TANKS

SECTION 42 SEWAGE LIFT STATION

SECTION 43 SEWER FORCE MAINS

SECTION 56 HORIZONTAL DIRECTIONAL DRILLING

SECTION 60 CHAIN LINK FENCING



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Example of Modifying Specification:

TECHNICAL PROVISIONS

SECTION 05 – WATER SERVICE LINES

MODIFICATION TO TECHNICAL PROVISIONS

A. Technical Provision Section 5 (TP-503 WATER SERVICE LINE MATERIALS)

Add the following text:

- I. Backflow Prevention Valve and Box Combination: Backflow Prevention Valve shall be a 1-inch Watts® Series 009 M2QT or approved equal. The backflow prevention valve will be installed in the location shown on the plans and in accordance with the manufacturer's recommendations. All fittings shown on the plans must be brass as approved by the engineer.

The backflow prevention device shall be installed in a fiberglass unit equal to a Flip-Top Fiberglass **Hot Box**® model HB-1.5 that is heated and insulated with insulation that is froth-injected polyisocyanurate foam (structural unicellular insulation) – 1" to 1 ½" thick to provide a minimum R-value of 8 to protect to –30° F.

The unit shall be large enough to fit the backflow prevention valve such that the valve is 12" above the concrete slab. The contractor shall install the fiberglass unit on a 6-inch thick concrete slab which shall be installed on a 6-inch thick layer of gravel as shown on the plans. The valve box will be installed in the location shown on the plans and in accordance with the manufacturer's recommendations.



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After June 2005 Standard Specifications & Details Published:

- Copies of “The Green Book” were distributed to contractors
- Engineers were required to use the standard specifications and details
- Modifying specifications were used, if needed, to make any project specific or Tribal specific changes
- Engineers and technicians made notes over the years of recommended improvements to the June 2005 edition for the next update



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After June 2005 Standard Specifications & Details Published:

- October 2011: Santa Fe District Engineer began process of updating standard specifications and details
- Utilized notes and marked up spec books from field engineers and technicians
- Contacted manufacturers/suppliers
- Reviewed all modifying specifications used by field engineers
- Drafted revised specifications and sent them out for review
- Presented major changes at Area Workshop and got input from field staff
- August 2012: a new addition was published ... “The Orange Book”



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AAIHS/OEHE SANITATION FACILITIES CONSTRUCTION TECHNICAL PROVISIONS



August 2012

SECTION 01 TRENCH EXCAVATION & BACKFILL FOR
PIPELINES AND APPURTENANT STRUCTURES

SECTION 02 CONCRETE

SECTION 03 REINFORCING STEEL

SECTION 04 WATER TRANSMISSION AND DISTRIBUTION
MAINS

SECTION 05 WATER SERVICE LINES

SECTION 06 GRAVITY SANITARY SEWERS

SECTION 07 SEWER SERVICE LINE

SECTION 11 ROADWAY, RAILROAD, AND SPECIAL UTILITY
CROSSINGS

SECTION 12 NON-AGGREGATE SEWAGE DISPOSAL
SYSTEMS

SECTION 13 INDIVIDUAL PRESSURE DOSED SEWAGE
DISPOSAL SYSTEM



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August 2012

SECTION 16 SINGLE RESIDENCE LIFT STATION

SECTION 28 HIGH DENSITY POLYETHYLENE (HDPE) PIPE
& FITTINGS

SECTIONS 30-31 WATER STORAGE TANK AND
FOUNDATION (BOLTED & WELDED)

SECTION 34 COATINGS FOR WELDED STEEL WATER
STORAGE TANKS

SECTION 42 SEWAGE LIFT STATION

SECTION 43 SEWER FORCE MAINS

SECTION 56 HORIZONTAL DIRECTIONAL DRILLING

SECTION 60 CHAIN LINK FENCING



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What are we doing now:

- Keeping track of improvements for the next version

Recommended Improvements to the August 2012 AAO Standard Specifications and Details

1. Detail 1A and TP-1: currently indicates 85% compaction under haunch area of the pipe. BIA saw this on a permit application and requested that it be changed to 95%.
2. Details 60A-E were mistakenly labeled 6 A-E
3. Change TP-11 casing spec from A252 to A 53 Grade B casing pipe with 3/8" min. thickness
4. Consider adding septic tank abandonment to TP-7
5. Consider adding requirement to knock hole in bottom of septic tank when abandoning it
6. Recommended changes to TP-34:

TP-3405.H: Warranty Inspection

Replace section H with the following text:



Open Discussion & Questions?



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