

WASATCH COUNTY



WASATCH COUNTY SUPPLEMENT TO UTAH APWA STANDARD SPECIFICATIONS

JANUARY 2012

INTRODUCTION

The purpose of compiling standard drawings and specifications is to bring uniformity of design and construction to Wasatch County. The adoption of these Specifications shall also aid Wasatch County in their work by providing a basis for inspecting construction projects throughout the county.

Wasatch County has adopted the Manual of Standard Specifications, 2007 Edition of the Utah Chapters of the American Public Works Association (APWA) and the Associated General Contractors of America as the basis for work in Wasatch County. This manual is available for purchase on line at www.utah.apwa.net or from Utah T2 Center at 1 800 822-8878, on a limited basis. Copies may also be ordered through our offices at 1891 West 3000 South, Heber Utah, 84032 (phone # 435 654-1661).

The following document is a supplement to the APWA specifications containing additions and amendments to the APWA specifications. This manual sets forth the standards for the preparation and processing of improvement plans of all related public work projects to be constructed under permit within Wasatch County and should be used in conjunction with the Wasatch County Code. The Wasatch County code may be found on the counties web site at www.co.wasatch.ut.us. This manual will also regulate any construction work completed through contract for Wasatch County.

Work will be governed in order by the following documents:

1. Wasatch County Code
2. Wasatch County's Supplement to APWA Specifications
3. North Village Special Service District Design Standards Construction Specifications and Standard Drawings, dated May 2008
4. Utah's APWA Specifications, 2007 Edition
5. UDOT Standards and Specifications, 2008 Edition

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CHANGES TO DOCUMENT 00 72 00

GENERAL CONDITIONS

PART 1 GENERAL

1.1 DEFINED TERMS

Amended or added definitions:

- A.1 Addenda:** Written or graphic instruments issued prior to the opening of Bids which clarify, correct or change the Contract Documents. The term Addendum shall include bulletins and all other types of written notices issued to potential bidders prior to opening of Bids.
- A.13 Construction Contract:** The entire and integrated compact between the OWNER and CONTRACTOR or AGENCY and DEVELOPER, memorialized in the Contract Documents concerning the Work to be performed which supersedes prior negotiations, representations or agreements, either written or oral.
- A.14 Contract Documents:** The Bid Documents, Agreement, Agreement Supplement, Development Agreement (for Developer related projects or subdivisions), General Conditions, Supplementary Conditions, Specifications, Standard Specifications, Drawings, Standard Plans together with all Modifications issued pursuant to Article 3.3 herein after the Effective Date of Construction Contract or Development Agreement (for Developer related projects or subdivisions).
- A.21 Drawings:** Graphic and pictorial productions of the ENGINEER or DEVELOPER, prepared or approved by the AGENT, showing the design, location and dimensions of the WORK, and generally include, the plan, elevations, sections, details, schedules and diagrams. Plans are also known as drawings.

DRAWINGS will show such details of all structures, lines, grades, typical cross sections of the roadway, location and design of all structures as are necessary to give the comprehensive idea of the contemplated construction. The Contractor shall keep one set of DRAWINGS available on the project at all times.

The DRAWINGS will be supplemented by such working drawings as are necessary to adequately control the work. Working drawings for fabricated or manufactured materials shall be furnished by the Contractor and shall consist of such detailed plans as may be required to adequately control the work and are not included in the plans furnished by the Department. They shall include shop drawings, erection plans, or any other supplementary plans or similar data required of the Contractor. When called for on the DRAWINGS, the Contractor shall also furnish stress sheets, false work plans, cofferdam plans, and bending diagrams for reinforcing steel. All working DRAWINGS must be approved by the Engineer and such approval shall not relieve the Contractor of any of his responsibility under the contract for the

successful completion of the work. Separate payment will not be made for the cost of furnishing working DRAWINGS.

A.23 ENGINEER: The person, firm or corporation designated in the Agreement as the OWNER's representative and agent for the Construction Contract, acting within the scope of the particular duties entrusted to such person, firm or corporation. The person may be a licensed architect, licensed landscape architect, licensed engineer, licensed land surveyor or other individual. For Subdivisions and other development projects constructed under an Engineering permit with Wasatch County, the ENGINEER will report directly to the Public Works Director.

The ENGINEER will decide all questions which may arise as to the quality and acceptability of materials furnished and work performed and as to the rate of progress of the work; all questions which may arise as to the acceptable fulfillment of the contract on the part of the Contractor

The ENGINEER will have the authority by written order to suspend the work wholly or in part due to the failure of the Contractor to correct conditions unsafe for the workmen or to the general public; for failure to carry out provisions of the contract; for failure to carry out orders; for such periods as he may deem necessary due to unsuitable weather; for conditions considered unsuitable for the prosecution of the work or for any other condition or reason deemed to be in the public interest. Written orders shall state the reason for suspension.

A.27a Public Works Inspector: The Resident Project Representative furnished by the ENGINEER and/or Public Works Director and assigned the duties of "inspection".

A.50 Standard Plans: The drawings (both graphical and text) contained in the latest edition of the Manual of Standard Plans published by the Utah Chapter of the American Public Works Association; also in the Amendments to the Manual of Standard Plans entitled "Standard Drawings" amended by Wasatch County.

A.52 Subcontractor: An individual, Supplier, firm or corporation having a contract with CONTRACTOR or with any other Subcontractor for the performance of a part of the Work. The CONTRACTOR will be responsible for all work supplied by the SUBCONTRACTOR which will include quality, performance schedule, and safety. The CONTRACTOR will coordinate all work activities with the ENGINEER and SUBCONTRACTOR.

PART 2 PRELIMINARY MATTERS

2.2 COPIES OF DOCUMENTS

Article 2.2 of the General Conditions is augmented by addition of the following paragraphs:

- A.** OWNER shall not furnish to CONTRACTOR published Contract Documents which include the Manual of Standard Plans and the Manual of Standard Specifications. Such documents shall be purchased separately by the CONTRACTOR.

- B. Copies of all Contract Documents including the Manual of Standard Plans and the Manual of Standard Specifications shall be provided on site by the CONTRACTOR.

2.2 A. Coordination of Plans, Specifications, the Supplemental Specifications, and the Special Provisions:

The specifications, the addendums to the standard specifications, the supplemental specifications, the plans, special provisions, and all supplementary documents are essential parts of the contract, and a requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. In case of discrepancy, calculated dimensions will govern over scaled dimensions; plans will govern over standard specifications; addendums to the standard specifications will govern over standard specifications; supplemental specifications will govern over standard specifications and addendums to the standard specifications; special provisions will govern over standard specifications, addendums to the standard specifications, supplemental specifications and plans.

The Contractor shall take no advantage of any apparent error or omission in the plans or specifications. In the event the Contractor discovers such an error or omission, he shall immediately notify the Engineer. The Engineer will then make such corrections and interpretations as may be deemed necessary for fulfilling the intent of the plans and specifications.

PART 3 CONTRACT DOCUMENTS, INTENT, AMENDING, REUSE

3.1 INTENT

Amend paragraph B to read as follows:

- B. **Contract Documents are Complementary:** The Contract Documents are complementary and cooperative and are intended to describe and provide for a complete project; what is required by one document or provisions thereof is binding as if required by all the documents or provisions thereof. Anything in the Specifications and not on the Plans, or on the Plans and not in the Specifications, shall be as though shown or mentioned in both.

4.2 PHYSICAL CONDITIONS- GENERAL

Add

- E. **Cooperation between Contractors:** The OWNER reserves the right at anytime to contract for and perform other or additional work on or near the work covered by any contract.

When separate contracts are let within the limits of anyone project, each Contractor should conduct his work so as to keep to a minimum any interference or hindrance with the progress or completion of the work being performed by other

contractors. In case of unavailable interference, the ENGINEER will establish work priority which in general will be in the sequence that the contracts were awarded. It is expected that there will be a reasonable amount of inconvenience and delay by reason of contractors working within the limits of the same project and to minimize this delay and inconvenience, they shall cooperate with each other as directed.

When separate concurrent contracts are let within the limits of any one project or multiple contracts, each contractor involved will submit a current realistic progress schedule. Before the OWNER accepts the schedule, each party shall have the opportunity to review all schedules. After this review and consultations, the OWNER shall determine acceptable schedules.

Each contractor involved shall assume all liability, financial or otherwise, in connection with his contract and shall protect and save harmless the OWNER from any damages or claims that may arise because of inconvenience delay or loss because of the presence of other contractors working within the same project.

The Contractor shall arrange his work and shall place and dispose of the materials being used so as not to interfere with the operations of the other contractors within the limit of the same project. He shall join his work with that of others in an acceptable manner and shall perform it in proper sequence to that of the others.

4.3 PHYSICAL CONDITIONS – UNDERGROUND FACILITIES

Delete all of section B. and amend to read

- B. **Not Shown or Indicated:** It is the CONTRACTORS responsibility to verify all utilities whether shown or not on the contract documents.

PART 5 BONDS AND INSURANCE

5.1 PERFORMANCE, PAYMENT AND OTHER BONDS

Article 5.1 of the General Conditions is hereby repealed and the following is substituted therefore:

- A. Prior to OWNER executing the Agreement, CONTRACTOR shall file with the OWNER a good and sufficient performance Bond and a payment Bond, each in the sum of not less than 100 percent of the Contract Price.
- B. The Bonds shall be executed by the CONTRACTOR and secured by a company duly and regularly authorized to do a general surety business in the State of Utah and named in the current list of Companies holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies as published in current Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department, with an underwriting limitation equal to or greater than the Contract Price which the Bond guarantees or with a current "A-" rating or better in A.M. Best Co., Inc.'s, Best Insurance Reports, Property and Casualty Edition.

- C. Said Bonds shall guarantee the faithful performance of the Construction Contract by the CONTRACTOR and payment of labor and materials. They shall insure by their terms to the benefit of the OWNER. Neither this nor any other provision requiring a performance Bond shall be construed to create any rights in any third party Claimant as against the OWNER for performance of the Work under the Construction Contract.
- D. If the surety on any Bond furnished by CONTRACTOR is subject to any proceeding under the Bankruptcy Code (Title 11, United States Code) or becomes insolvent or its right to do business is terminated in the State of Utah or it ceases to meet the requirements of this Article, CONTRACTOR shall, within 15 days thereafter, substitute another Bond and surety, both of which must be acceptable to OWNER.

5.2 INSURANCE

Article 5.2 of the General Conditions is hereby repealed and the following is substituted therefore:

- A. **In General:** All policies of insurance provided shall be issued by insurance companies qualified to do business in the State of Utah and listed on the U.S. Treasury Department's current Department of Treasury Fiscal Services List 570, or having a general policy holder's rating of not less than "A-" in the most current available A. M. Best Co., Inc.'s, Best's Insurance Report.
 - a. Each insurance policy required by the Agreement, excepting policies for Workers' Compensation and Professional Liability, shall contain the following clause: *"Wasatch County, its elected and appointed officials, employees, agents and volunteers are to be named as additional insured as respect to operations and activities of, or on behalf of, the named insured as performed under Agreement with the County."*
 - b. Insurance is to be placed with insurers acceptable to and approved by the County. CONTRACTOR's insurer must be authorized to do business in Utah at the time the contract is executed and throughout the time period the contract is maintained, unless otherwise agreed to in writing by the County. Failure to maintain or renew coverage or to provide evidence of renewal will be treated by County as a material breach of contract.
 - c. The County shall be furnished with original certificated of insurance and endorsements effecting coverage required within, signed by a person authorized by that insurer to bind coverage on its behalf. All certificates and endorsements are to be received by the County before signing the Agreement.
 - d. Any deductibles or self-insured retentions must be declared to and approved by the County. At the option of the County, either: the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the County, its elected and appointed officials, employees, agents and volunteers; or CONTRACTOR shall provide a financial guarantee satisfactory to the County guaranteeing payment of losses and related investigations, claim administration and defense expenses.
 - e. In addition to any other remedies County may have if CONTRACTOR fails to provide or maintain any insurance policies or policy endorsements to the

extent and within the time limits required, County may, at its option: a) obtain such insurance, deduct and retain the amount of premiums for such insurance from any sums due under the Agreement, b) order CONTRACTOR to stop work under this Agreement and/or withhold any payment(s) which become due to CONTRACTOR until CONTRACTOR demonstrates compliance with requirements, c) terminate this Agreement, or d) other reasonable remedy.

- f. CONTRACTOR shall include all subcontractors and insured under its policies or shall furnish separate certificates and endorsements for each subcontractor. All coverage's for subcontractors shall be subject to all of the requirements stated herein.
- g. Nothing contained herein shall be construed as limiting in any way the extent to which CONTRACTOR may be held responsible for payments of damages to persons or property resulting from CONTRACTOR's or its subcontractor's performance of the work covered under this Agreement.
- h. If requested, CONTRACTOR shall also furnish copies of the insurance policies secured for the Work. The County reserves the right to require complete, certified copies of all required insurance policies at any time. CONTRACTOR shall procure and maintain for the duration of the contact, insurance against claims for injuries to persons or damages to property, which may arise from or in connection with the performance of the work hereunder by the CONTRACTOR, his agents, representatives, employees or subcontractors. The cost of such insurance shall be included in CONTRACTOR's Bid. The amount of the insurance shall not be less than the following:

- B. Worker's Compensation Insurance:** In addition to other required insurance, the CONTRACTOR shall obtain and maintain during the life of the Construction Contract, worker's compensation insurance as required by Laws and Regulations for all of CONTRACTOR's employees employed at the site of the Work, and in case any Work is subcontracted, the CONTRACTOR shall require the Subcontractor similarly to provide worker's compensation insurance for all of the latter's employees, unless such employees are covered by protection as required by Laws and Regulations. Worker's compensation limits as required by the Labor Code of the State of Utah and employers' liability limits are \$1,000,000 per accident.
- C. Business Automobile Liability:** \$1,000,000.00 combined single limit per accident for bodily injury and property damage for owned, non-owned and hired vehicles.
- D. Commercial General Liability Insurance:** CONTRACTOR shall secure and maintain during the life of the Construction Contract and at all times thereafter when CONTRACTOR may be correcting, removing or replacing Defective Work, a comprehensive commercial general liability insurance policy. The policy shall protect the CONTRACTOR, the OWNER, the ENGINEER, and any Subcontractor performing work covered by the Construction Contract from claims for damages for personal injury, including accidental death, and from claims for property damage which may arise from CONTRACTOR's operations under this Construction Contract, whether such operations be by itself or by any Subcontractor or by anyone directly or indirectly employed by either of them. Unless specified otherwise in the Supplementary Conditions, the minimum amounts of such insurance for combined single limit per occurrence shall be \$1,000,000.00 for

bodily injury, personal injury and property damage and \$2,000,000 general aggregate.

The policies are to contain, or be endorsed to contain, the following provisions: The Contractor's insurance coverage shall be primary insurance and any insurance or self-insurance maintained by the County, its officers, officials, employees or volunteers shall be excess of the Contractor's insurance and shall not contribute with insurance provided by this policy. Each policy shall be endorsed to state that coverage shall not be suspended, voided, canceled, reduced in coverage or in limits except after thirty (30) days prior written notice by certified mail, return receipt requested, has been given to the County.

Policy to include coverage for premises and operations. Contractual liability, personal injury liability, products/completed operations liability, broad-form property damage (if applicable) and independent contractor's liability (if applicable) written on an occurrence form.

Any deductibles or self-insured retention must be declared to and approved by the County. Insurance is to be placed with insurers acceptable to and approved by the County. The County shall be furnished with certificates of insurance and with original endorsements affecting coverage required within, signed by a person authorized by the insurer to bind coverage on its behalf. All certificates and endorsements are to be received and approved by the County before work commences. The County reserves the right to require complete, certified copies of all required insurance policies at any time.

The CONTRACTOR shall include all subcontractors as insured under its policies or shall furnish separated certificates and endorsements for each subcontractor. All coverage for subcontractors shall be subject to all of the requirements stated herein.

- E. Automotive Public Liability Insurance:** Whenever CONTRACTOR or any Subcontractor shall use and operate automobiles, trucks or other vehicles on public streets and highways in complying with the terms and conditions of the Construction Contract, CONTRACTOR or each Subcontractor shall carry automobile public liability insurance with limits not less than \$1,000,000.00 for any on accident or loss.
- F. Insurance Non-cancelable for 30 Days:** Each policy of insurance provided in the Contract Documents shall be absolutely non-cancelable for a period of not less than 30 days after notice and shall contain the following provisions or one substantially the same as the following:

This policy shall not be subject to cancellation, change, or reduction of coverage by the other party or parties hereto, unless notice, as defined herein is sent to the OWNER, with a copy to the ENGINEER and the OWNER's attorney."
- G. Builder's Risk:** CONTRACTOR agrees to and assumes the risk of loss for any damage or loss to the Work and Project by any means or occurrence until Substantial Completion. CONTRACTOR further agrees to obtain builder's risk or course of construction insurance in the total amount of the Contract Price.
- H. Wasatch County Additional Insured:** Each policy of insurance provided in the Contract Documents shall also protect the government of O.C.C. during the life of the Construction Contract and at all times thereafter from public liability and

property damage claims indicated in paragraph 5.2D, and automotive public liability damage claims indicated in paragraph 5.2E above.

PART 6 CONTRACTOR'S RESPONSIBILITIES

6.2 LABOR, MATERIALS, AND EQUIPMENT

Add paragraph F:

F. Load Restrictions:

The Contractor shall comply with all legal load restrictions in the hauling of materials on public highways beyond the limits of the project. The issuance of special permit will not relieve the Contractor of liability for damage which may result from the moving of equipment.

The Contractor may utilize any size or weight of equipment on the project which will not cause damage to the roadway and structures except hauling of materials over the base course shall be limited to the legal axle loads allowed for public highways, and over surface course and structures shall be limited to the legal axle and legal gross loads allowed for public highways. No loads will be permitted on concrete pavement, base or structure before the expiration of the curing period as designated in the specifications for the concrete pavements and concrete structure. The Contractor shall be responsible for all damage done by his hauling equipment.

6.7 PERMITS AND LICENSES

Article 6.7 of the General Conditions is augmented by addition of the following paragraphs

- H. Grading Permit:** Prior to completing any work in Wasatch County you must obtain a grading permit. Applications for various grading permits can be found on the county's website at www.co.wasatch.ut.us. Forms can also be picked up and must be submitted to the County's Engineering Department at 1891 West 3000 South Heber, Utah.
- I. CONTRACTOR-Paid Permits:** The fees for permits not paid for by the OWNER shall be included in the CONTRACTOR's Bid. The following list is not exclusive and does not relieve CONTRACTOR of the responsibility of obtaining all permits:
- a. **Construction Water:** If water for construction is required to be taken from fire hydrants, from a new water service, from an irrigation source or from any other water source the Contractor shall be solely responsible for obtaining and paying for necessary permits and water usage to the regulating agency. Construction water obtained from a fire hydrant must be metered. Connections made without proper backflow prevention or hydrants connected without a hydrant meter may be subject to penalties or fines.
 - b. **Building, Electrical and Plumbing Permits**
 - c. **Permit and Fees for Tap of Water Mains**
 - d. **Permit and Fees for Tap of Sewer Mains**

- J. Other Permits: All other permit fees required by Wasatch County, the State of Utah, the United States of America, and any of their agencies, or by any private utility companies, shall be paid for and obtained by the CONTRACTOR and included in the CONTRACTOR's Bid. The following list is not exclusive and does not relieve CONTRACTOR of the responsibility of obtaining all permits:
 - a. UDOT Digging Permit: From Permits Officer; State of Utah, District 3.
 - b. Private Property Owner Permit: Written permission to use private water.
 - c. Private Property Owner Permit: Written permission to store product, equipment materials and supplies outside of Work site boundaries.

6.15 CONTINUING THE WORK

Paragraph B is hereby repealed and the following is substituted therefore:

- B. No Damage for Delay
 - 1. In all cases where CONTRACTOR is delayed, hindered, or obstructed in the execution of the work, or any part thereof, for any reason whatsoever, the CONTRACTOR shall not be entitled to claim or recover any damages or additional payment from the OWNER or ENGINEER. It is however, the intent of this regulation that in all cases where the CONTRACTOR is substantially delayed, hindered, or obstructed in the execution of the work through no fault of the CONTRACTOR and because of conditions beyond the CONTRACTOR's control, the contract time shall be extended by change order by such amount as conditions, in the judgment of the ENGINEER, justify, and such extension of Contract Time shall be the exclusive remedy of the CONTRACTOR.
 - 2. Claims relating to time shall be made in accordance with the applications provisions of Article 12.1. CONTRACTOR'S plea that insufficient time was specified is not a valid reason for extension of Contract Time. Contract Time shall not be extended for any weather-related delays.
 - 3. Permitting the CONTRACTOR to continue and finish the work or any part of it after the time fixed for its completion, or after that date to which the time may have been extended, will in no way operate as a waiver on the part of the OWNER of any of its rights under the Contract.

6.16 CONTRACTOR'S GENERAL WARRANTY AND GUARANTEE

Amend to read as follows:

- A. **Defects or Damage Exclusion:** CONTRACTOR warrants and guarantees to OWNER that all work will be in accordance with the Contract Documents and will not be defective. CONTRACTOR, Subcontractors or Suppliers are responsible for all work on project until partial or final acceptance is given. CONTRACTOR's warranty and guarantee hereunder excludes defects or damage caused by normal wear and tear under normal usage.

6.17 INDEMNIFICATION

Amend Paragraphs A and B to read as follows

- A. **Indemnification of OWNER:** CONTRACTOR shall indemnify, defend and hold harmless OWNER and ENGINEER, and their elected officials, officers, agents,

employees, and volunteers from and against any and all claims, damages, losses and expenses, direct, indirect or consequential (including, but not limited to fees and charges of engineers, architects, attorneys and other professionals and court costs) arising out of or resulting from the negligent acts or omissions in performance of Work by CONTRACTOR, any Subcontractor, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, regardless of whether or not the claim, damage, loss, etc. arising from the act or omission is caused in part by a party indemnified hereunder or arises by or is imposed by Law and regulations regardless of the negligence of any such party.

- B. Indemnification Not Limited:** In any claims against OWNER or ENGINEER or any of their elected officials, officers, agents, employees or volunteers by any employees of CONTRACTOR, any Subcontractor, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.16A shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for CONTRACTOR or any such Subcontractor or other person or organization under workers' compensations acts, disability benefit acts or other employee benefit acts.

Add paragraph:

6.19 USE OF EXPLOSIVES

- A.** When the use of explosives is necessary for the prosecution of the work, the CONTRACTOR shall exercise the utmost care not to endanger life or property, including new work. The CONTRACTOR shall be responsible for all damage resulting from the use of explosives.

All explosives shall be stored in a secure manner, in compliance with local laws and ordinances and all such storage places shall be clearly marked. Where no local laws or ordinances apply, storage shall be provided satisfactory to the ENGINEER and in general not closer than 1,000 feet from the road or from any building or camping area or place of human occupancy.

The CONTRACTOR shall notify each public utility company having structures in proximity to the site of the work of his intention to use explosives and such notice shall be given sufficiently in advance to enable the companies to take such steps as they may deem necessary to protect their property from injury.

PART 13 TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

13.4 DEFECTIVE WORK

Amend to read as follows:

- B. Work may be judged defective by ENGINEER regardless of cause, except when such defect or failures are the result of Engineers design deficiencies, acts of God, or misuse by OWNER.

PART 14 PAYMENTS TO CONTRACTOR AND COMPLETION

14.9 FINAL PAYMENT AND ACCEPTANCE

Amend to read as follows:

- A. **ENGINEER'S Determinations:** ENGINEER shall review CONTRACTOR'S final Application for Payment and, based upon ENGINEER's observations of the Work during construction and Final Inspection, submission by CONTRACTOR of all required documentation of CONTRACTOR's compliance with the Contract Documents, either forward the application to OWNER for payment or return it to CONTRACTOR. Request for release of any retention should be made at this time.

Add the following section:

- E. **Warranty on Development work:** There is a 2 year warranty period on all development work as defined in the Wasatch County Code.

SECTION 01 57 00 TEMPORARY CONTROLS

PART 3 Execution

Add Section 3.4

3.4 Erosion Control

- A. Detailed erosion control measures found in **Section 31 25 00 EROSION AND SEDIMENTATION CONTROL**.

SECTION 01 71 23 CONSTRUCTION LAYOUT

PART 3 Execution

3.1 Project Survey Requirements

Add Section C:

- C. If survey is the responsibility of the CONTRACTOR, it is his responsibility to demonstrate to the engineer where the top surface of the sub grade is relative to the design. This can be done with hubs and “red heads” or any other method approved by the engineer. No granular or base course to be added until sub grade is approved.

SECTION 02 41 13 SELECTIVE SITE DEMOLITION

PART 3 Execution

3.1 PREPARATION

Add new section C:

- C. Prior to any building demolition a demolition permit is required. This permit requires the evaluation of possible hazardous waste, primarily asbestos, and how to dispose of such wastes.

Add new section 3.9:

3.9 MATERIAL REMOVAL

- A.** All material generated from demolition activity will be removed from the project site unless approved by the ENGINEER. This may include but not be limited to concrete, re-bar, wood, asphalt shingles, plastics, metal, pipe products, fence, guardrail, trash, etc... Any costs associated with dumping of materials are the CONTACTORS responsibility.

SECTION 02 41 14 PAVEMENT REMOVAL

PART 3 Execution

3.1 PREPARATION

Under D. Existing Surfaces, rewrite section 1. To read:

1. Do not damage adjacent concrete surfaces that are not scheduled for removal. The CONTRACTOR is responsible to locate and protect any buried or hidden appurtenances including ones that may not be shown on the plans. This may include concrete manholes or vaults, metal riser or grates, other utilities. Repair and or replace any structures hit by pavement removal activities at no additional cost to the OWNER. There will not be any reimbursement to the CONTRACTOR for equipment damage due to hitting buried or hidden appurtenances.

SECTION 31 05 19 GEOTEXTILES

PART 3 Execution

3.2 SILT FENCE

Remove Section A. and replace with:

- A.** Silt Fence to be installed prior to any earth moving activity per submitted erosion control plan per **SECTION 31 25 00 EROSION AND SEDIMENTATION CONTROL.**

Remove Section B. and replace with:

- B.** The quantity of silt fence will be based on the erosion control plan as submitted, prior to any work activity. There will not be any reduction in quantity unless approved by the engineer. The silt fence must be maintained for the life of the

project or until the potential for erosion is removed. The silt fence must be removed at the end of the project.

SECTION 31 11 00 SITE CLEARING

PART 3 Execution

3.3 SITE CLEARING

Eliminate Section A. and replace with:

- A.** Clearing limits will be established by the CONTRACTORS surveyor or by the Engineer, if survey is not included in the CONTRACT, based on the design. All ground within the clearing limits shall be cleared of trees, stumps, brush, weeds, roots, and other objectionable material. No vegetation or organic matter will be allowed in the fill slopes. The Contractor shall dispose of all trees, stumps, brush, weeds, roots, sod, etc, in a satisfactory manner; and shall remove all rubbish and refuse to such a point or points beyond the limits of excavation where the material will not be unsightly. If the CONTRACTOR elects to grind or chip vegetation, the processed chips may be allowed to be mixed in with the topsoil under the ENGINEERS discretion. All excavations made by the removal of trees, stumps, etc., shall be filled with suitable material, which shall be compacted so as to make the surface at these points conform in contour and density to that of the surrounding ground.

Add Section C. Removal of Structures and Obstructions:

- C.** This work shall consist of the removal wholly or in part, and satisfactory disposal of all structures and obstructions within the right-of-way including buildings, basements, foundations, bridges, culverts, fences, guard rail, pavements, and debris. It shall also include the salvaging of designated material and backfilling the resulting holes and pits. Backfill within the roadway limits shall be compacted to the required sub grade densities. All material removed, except that owned by and disposed of by utilities, shall become the property of the Contractor and shall be disposed of in a satisfactory manner.

1. **Removal of Buildings:** The buildings shown on the plans or listed in the special provisions shall be moved or demolished including all other incidental structures and obstructions such as basements, foundations, sidewalks, pavement, slabs, fences and outbuildings serving as part of a parcel unit.

No demolition or removal of any building shall proceed until a removal permit is acquired and all utilities including sewer, water, power, gas and telephone lines have been properly disconnected.

Disconnected sewer lines shall be plugged by the Contractor near the right-of-way line with a watertight plug of Class A concrete extending into the remaining pipe at least 2 feet. If there is a septic tank, it shall be removed and the hole backfilled with granular material.

Basement walls and foundations shall be removed at least 2 feet below the natural ground surface or 2 feet below the intended ground surface, whichever is the lowest. The holes left by the basement foundations and other structures, shall be filled with granular material and compacted to at least the relative density of the surrounding ground. Any concrete basement walls or foundations located under a road section must be removed completely.

2. **Bridges and Concrete Box Culverts:** Existing bridges and concrete box culverts shall be removed where specified on the plans or in the special provisions. Structures shall be removed to such an extent that no remaining portion shall be closer than 3 feet to any water course or closer than 2 feet to the subgrade and embankment surface, or within one foot of the natural ground surface.

The structure within the roadway limits of the proposed highway shall be removed to such an extent that the Contractor can provide compacted backfill as required in embankment construction.

3. **Miscellaneous:** All other structures and obstructions including fences, guard rail, old pavements, pipe culverts and trash within the limits of the right-of-way shall be removed.

SECTION 31 23 16 EXCAVATION

PART 3 Execution

3.8 ROADWAY EXCAVATION

Add Section C.:

- C. The excavation for road work, channels, intersections and connections shall be finished to the lines, grades, and typical sections shown on the plans or as directed. It may be necessary to excavate below the lines and grades shown on the plans or required in the special provisions to remove undesirable materials. Excavation operations shall be conducted so that material outside of the limits of slopes will be minimally disturbed, unless otherwise directed.

The road bed and ditches shall be maintained in such condition that the work shall be well drained at all time, including periods of work suspension.

If it is necessary in the prosecution of the work to interrupt the existing flow of irrigation water, existing surface drainage, sewers, or under drainage, temporary facilities shall be provided until permanent drainage or irrigation work is completed. All areas where seepage or standing water exists, if feasible and required, must be thoroughly drained. This work must be done in advance of any

grading operations. The construction of all temporary drainage or irrigation facilities as required shall be the responsibility of the Contractor.

All intersecting roads, approaches, entrances and driveways shall be graded as shown on the plans or as directed. The work of constructing intersections and private entrances, trimming shoulders and slopes, finishing the subgrade and completing the ditches to proper alignment and cross section, shall closely follow' the rough grading. During the grading operations, the surface of the excavated area shall be maintained in such condition as to insure adequate drainage.

3.12 TOLERANCE

Eliminate Section A. and replace with:

- A. If survey is the responsibility of the CONTRACTOR, it is his responsibility to demonstrate to the engineer where the top surface of the subgrade is relative to the design. This can be done with hubs and "red heads" or any other method approved by the engineer. No granular or base course to be added until sub grade is approved.

SECTION 31 23 17 ROCK REMOVAL

PART 3 Execution

Add Section 3.5 FINAL PRODUCT:

3.5 FINAL PRODUCT

- A. Unless otherwise specified, material classified as rock shall be excavated to a minimum depth of 6 inches below subgrade within the limits of the roadbed, and the excavation backfilled with material designated on the plans or approved by the Engineer and compacted. Care shall be taken that any un-drained pockets shall not be left in the surface of the rock.

SECTION 31 23 23 BACKFILLING FOR STRUCTURES

PART 3 Execution

Revise 3.4 title to read:

3.4 FOUNDATIONS, SLABS ON GRADE, CONDUIT, AND PIPE CULVERT

Add Section F. and G.:

- F. All backfilling and embankment construction adjacent to piers, abutments, culverts, wing walls, retaining walls, pipe trenches, and other structures, and all other areas

of backfill and roadway embankments inaccessible to roller equipment, shall be properly moistened and compacted in successive 6 inch (loose measurement) courses or layers by means of mechanical tamping devices approved by the Engineer to the required density. Limited tamping shall be made, as directed by the Engineer, immediately adjacent to bridge abutments, wing walls, and retaining walls, the rate of placing backfill materials shall at all times be coordinated with tamping operations so that the required compaction is obtained. Excessive water in backfill material or jetting will not be permitted. All drainage openings in masonry or concrete shall be backfilled one foot in each direction from the opening with coarse concrete aggregate.

- G. Backfilling around pipe culverts and other conduits in a trench shall consist of granular or other fine, readily compactable material which shall not contain rock larger than 2 inches in size, frozen lumps, clay or other objectionable material and shall be noncorrosive.

When the top of the pipe is exposed above the top of the trench, embankment material shall be placed and compacted by mechanical tamping as above specified for a width on each side of the pipe equal to at least twice the horizontal inside diameter of the pipe or 3 feet whichever is less. The embankment material within this distance and 1 foot over the top, shall be of the same material as specified above for trench backfill. The remainder of the adjacent side fill may be regular embankment material and if feasible, without damage to the culvert, can be compacted by power equipment. **All backfill material above storm water pipe, sewer pipe, and waterline to be minus 6”.**

The adjacent side fill shall be placed and compacted to a minimum width of two diameters of the pipe or 12 feet, whichever is less, prior to use by traffic or construction equipment.

SECTION 31 23 26 COMPACTION

PART 3 Execution

3.1 COMPACTION

Add Section D. through H.

- D. When the top layer of the ground underlying the proposed roadway embankment is of loose material, the top 8 inches shall be moistened, processed and compacted to geotechnical engineer's specifications or not less than 90 percent of maximum laboratory density.

The Contractor shall be responsible for the stability of all constructed embankments and shall replace any portions which have become displaced due to careless or

negligent work on the part of the Contractor, or to damage resulting from natural causes, such as storms.

- E. Whenever the site of an embankment is covered with snow of sufficient depth to impair the quality of the embankment, the snow must be removed and deposited beyond the slope stakes at the Contractor's own expense. Where embankment of 12 inches or less is to be constructed over existing bituminous surfaced roads, unless otherwise specified the surface shall be scarified, mixed with sub-base material and re-compacted. If the top layer of the embankment becomes frozen or if frozen material is delivered to the fill, operations shall be suspended until conditions are favorable for proper compaction.
- F. Rock over four inches in diameter or broken concrete shall not be placed in embankment areas where piling is to be placed or driven or in the top 12 inches of the embankment.
- G. Except for rock fills and as otherwise provided, embankment materials shall be placed in layers not exceeding 12 inches (un-compacted depth) and shall be compacted before the next layer is placed. Effective spreading equipment shall be used on each lift to obtain uniform thickness prior to compacting. As the compaction of each layer progresses, continuous leveling and manipulating will be required to assure uniform density. Compacting equipment which causes shear failures in the embankment shall not be used.

Embankment material containing by volume approximately 25 percent or more of rock too large to be compacted in layers 12 inches thick shall be placed in layers of thickness not exceeding the average size of the larger rock present in the material. The large rock shall be well distributed and sufficient earth or other fine material shall be incorporated with the course rock as it is deposited in order to fill the interstices and to provide a dense, solid embankment. Each layer shall be compacted uniformly over the entire width.

The lifts of rock shall not be constructed above an elevation of 1 foot below the subgrade. The balance of the embankment shall be composed of suitable fine material placed in layers, smoothed and compacted.

When rock material is used in embankment construction, no fragments having a vertical dimension greater than 24" will be permitted. The rock shall be distributed and manipulated so that adequate space is provided for the proper placing and compacting of embankment material between the fragments in horizontal layers as specified elsewhere in the specifications.

- H. Embankment construction shall be maintained in such condition that it will be well drained at all times. During periods of work suspension, the Contractor shall open draining culverts and ditches and take every precaution to prevent damage.

Where embankments are to be placed on a hillside or against an existing embankment and the existing slopes are 4:1 or steeper, the hillside or existing

embankment shall be terraced to prevent slipping. The terraces shall be large enough for equipment to work and shall be as close together as the slopes of the original material will permit. The material thus excavated shall be re-compacted along with the embankment material being placed.

3.2 FIELD QUALITY CONTROL

Remove Section A. and rewrite to read:

- A.** Testing; Prior to any dirt working activities, have testing company sample all varieties of soil and determine optimum moisture and proctor if possible. If there is too much rock, determine rock factor. Perform control testing of materials. Perform additional testing at no additional cost to owner;
 - a. Because of changes in sources of materials or proportions requested by CONTRACTOR.
 - b. Because of Failure of materials to meet specification requirements.
 - c. For other testing services needed or required by CONTRACTOR.

SECTION 31 25 00 EROSION AND SEDIMENTATION CONTROL

PART 1 GENERAL

1.1 SECTION INCLUDES

Add Section C. through E.

- C.** Requirements for controlling erosion and reducing sediment leaving the construction site and areas under the Contractor's control.
- D.** Requirements for installing, inspecting, maintaining, and removing temporary erosion control measures.
- E.** Materials and procedures for installing and removing temporary environmental fencing.

1.2 SUBMITTALS

Add Section C.

- C.** Prepare and submit a Notice of Intent (NOI) for Storm Water Discharges associated with Construction Activity to the Division of Water Quality at the Utah Department of Environmental Quality (DEQ) along with a signed copy of the NOI to the Engineer, when disturbing one or more acres. NOI forms can be completed online at Division

of Water Quality website. Refer to:
<http://www.udot.utah.gov/go/standardsreferences>.

Submit a Notice of Termination (NOT) form to the Division of Water Quality to terminate the permit, along with a signed copy to the Engineer at the end of construction.

Add Section 2.2:

2.2 TYPES OF TEMPORARY CONTROL MEASURES AND MATERIALS

- A. Check Dam: A fiber roll or stone structure placed across a ditch to intercept and trap sediment. Construct so water will flow over a low point in the middle of the dam and not around the sides.

Check Dam Materials:

1. Fiber Roll: Contact Engineer for currently approved products.
2. Wood stakes: commercial quality lumber, nominal 2-inch square by 3 ft.
3. Channel Liner: Contact Engineer for currently approved products.

- B. Silt Fence: A geotextile fabric fence to intercept and trap sediment.

Silt Fence Materials:

1. Silt Fence Fabric: See Section **31 05 19 GEOTEXTILE MATERIALS**
2. Wood Post: commercial quality lumber, nominal 2-inch square by 4 ft.
3. Fasteners: Staples, wire, zip ties, or nails sufficient to maintain fabric attachment to post.

- C. Slope Drain: A polyethylene pipe placed on a slope to collect and transport storm runoff down the face of a slope until permanent drainage facilities are installed or vegetation growth is adequate.

Slope Drain Materials:

1. Pipe Culverts: Refer to Section 02610.
2. End Section: Refer to Section 02613.
3. Loose Riprap: Refer to Section 02373.
4. Wooden stakes: commercial quality lumber, nominal 2-inch square by 3 ft.

- D. Temporary Berm: A ridge of compacted soil, with or without a shallow ditch that diverts storm runoff from a slope to a controlled release point.

Temporary Berm Materials:

1. Existing Soil.

- E. Drop inlet Barrier: A fiber roll, silt fence, or stone barrier placed around a drop inlet that intercepts and traps sediment.

Drop Inlet Barrier Materials:

1. Fiber Roll, Contact Engineer for currently approved products.
2. Stone: Well-graded within 2 to 6 inch diameter.
3. Silt Fence: See AASHTO M 288 (Table 6 – Temporary Silt Fence Property Requirements). Wood stud: 2 inches x 4 inches nominal.

F. Pipe Inlet Barrier: A barrier protecting a pipe inlet that intercepts and traps sediment before it enters the pipe.

Pipe Inlet Barrier Materials:

1. Stone, well-graded within 2 to 6 inch in diameter.
2. Fiber Roll, Contact Engineer for currently approved products.

G. Curb Inlet Barrier: A protective barrier placed across a curb inlet that intercepts and traps sediment before it enters the inlet.

Curb Inlet Barrier Materials:

1. Concrete Building Blocks.
2. Stone, Well-graded within 2 to 6 inch diameter
3. Wire Mesh: 0.5 inch by 0.5 inch openings.
4. Wood stud: 2 inches x 4 inches nominal.

H. Sediment Trap: An excavated basin, usually installed at low points on a construction site that intercepts and traps sediment. Location determined by the Engineer.

Sediment Trap Materials:

1. Loose Riprap, Refer to Section 02373.

I. Stabilized Construction Entrance: A layer of rock placed at a construction site entrance that removes mud from vehicle tires before tracking onto a paved road.

Stabilized Construction Entrance Materials:

1. Stone, Well-graded within 2 to 3 inch in diameter.

J. Straw Bale Barrier: Straw bales placed end to end used where a silt fence would fail. Install to intercept and trap sediment.

Straw Bale Barrier Materials:

1. Straw Bales: Obtained from weed free fields that have been certified by the Utah Department of Agriculture.

K. Temporary Environmental Fence: A visual barrier used to delineate and prevent encroachment on sensitive areas.

Temporary Environmental Fence Materials:

1. Fence Fabric:
 - a. Polyethylene, high-density, UV stabilized
 - b. Width: 4 ft minimum

- c. Color: orange
- 2. Posts:
 - a. Meet AASHTO M 281
 - b. Painted or galvanized metal "T" post, 5 ft to 6 ft long

PART 3 EXECUTION

Add 3.1 A, 3.1 B., 3.1C, 3.1E

3.1A PREPARATION, TEMPORARY EROSION CONTROL MEASURES

- A. Do not begin any earth-disturbing activity until the NOI form has been completed and submitted to the Division of Water Quality and the Engineer when disturbing one or more acres.
- B. Understand and comply with the requirements of Utah Storm Water General Permit for Construction Activities.
- C. Follow the Storm Water Pollution Prevention Plan (SWPPP) provided in the plan set.
 - 1. Create and submit a plan to the Engineer if a SWPPP is not provided in the plans when any earth-disturbing activities are required.
 - a. Address all disturbed areas including, but not limited to, staging areas, haul roads, borrow sites, stockpiles, and disposal areas.
 - b. Do not start earth-disturbing activity until the SWPPP is approved and project perimeter erosion control measures, and those protecting environmentally sensitive areas, are in place.
 - 1) Obtain written approval from the Engineer to change the SWPPP.
 - 2. Maintain a copy of the approved SWPPP with the following information on the project site at all times:
 - a. SWPPP title sheet
 - b. EN Series Standard Drawings
 - c. Erosion and sediment control plan sheets
 - d. Project specific details and all contract specifications
- D. Use the most restrictive requirement if a conflict occurs between erosion and sediment control specifications and federal, state, or local agency laws, rules, or regulations.
- E. Install temporary environmental fence, when required, before construction begins.

3.1B INSTALLATION, TEMPORARY EROSION CONTROL MEASURES

- A. The erosion control measures in the SWPPP are illustrative. Adapt measures in the field to meet their intended purpose and implement appropriate erosion control

measures necessary as the project progresses. Make required changes to the SWPPP to accommodate construction sequencing with the approval of the Engineer.

- B. The Engineer may direct the installation of additional erosion control measures. Install additional erosion control measures as directed.
- C. Follow installation procedures outlined in the EN Series Standard Drawings.
- D. Provide or construct measures such as check dams, silt fence, slope drains, drop inlet barriers, sediment traps, and other erosion control devices or methods to reduce erosion and sedimentation.
- E. Install stabilization measures as soon as practical on newly disturbed areas but in no case later than 14 days after disturbance unless further construction activity precludes installation and will resume inside that area within 21 days from when activity ceased. Refer to Sections 02376 and 02911.
 - 1. Install stabilization measures before seasonal shut down.
- F. Install temporary environmental fence in the required locations.
 - 1. Install posts at a 12 ft maximum spacing so the fence does not sag more than 2 inches between posts.
 - 2. Weave the fence over the support posts alternating every two loops and secure it to the posts with wire or plastic ties.

3.1C INSPECTION, TEMPORARY EROSION CONTROL MEASURES

- A. Inspect all denuded areas during construction to determine potential erosion problems. Apply corrective measures as required. Maintain a record of all erosion control measures throughout the project life.

3.1D MAINTENANCE, TEMPORARY EROSION CONTROL MEASURES

- A. Maintain erosion control devices in order that they function properly until all disturbed areas draining to them are stabilized.
- B. Remove and properly dispose of sediment when it has accumulated half way up the overall structure height, or when it interferes with the performance of the structure.
- C. Dispose of sediment removed from erosion control structures in a manner acceptable to the Engineer.

3.1E REMOVAL, TEMPORARY EROSION CONTROL MEASURES

- A. Remove any remaining sediment from behind and around erosion control features and remove all temporary erosion control features unless directed differently by the

Engineer after all seeding and mulching has been placed and within two weeks of project acceptance.

- B. Remove temporary environmental fence and posts upon completion of construction.
 - 1. Temporary environmental fence and all components becomes property of the Contractor when construction is complete.

SECTION 32 01 13 SLURRY SEAL

PART 3 EXECUTION

3.2 PREPARATION

- B. Protection
 - Add Section 6.*
 - 6. Cover and protect all manhole lids, valve covers, irrigation boxes, and survey monuments.

SECTION 32 16 13 DRIVEWAY, SIDEWALK, CURB, GUTTER

PART 1 GENERAL

1.2 REFERENCES

Add Section E.

- E. Americans with Disabilities Act, ADA

PART 3 EXECUTION

3.3 LAYOUT

Add Section D.

- D. All work to comply with the guidelines of the ADA

SECTION 32 16 14 CURB RAMP

PART 1 GENERAL

1.2 REFERENCES

Add Section C.

- C. Americans with Disabilities Act, ADA

PART 3 EXECUTION

3.3 LAYOUT

Add Section F.

- F. All work to comply with the guidelines of the ADA

SECTION 32 91 19 LANDSCAPE GRADING

PART 3 EXECUTION

3.1 PREPARATION

Add Section F.

- F. Notify ENGINEER at least 2 working days prior to any Landscape Grading work.

3.9 CLEANING

Add Section C.

- C. Remove any excess topsoil, common material, or aggregate materials on asphalt or concrete surfaces by washing or sweeping.

SECTION 32 92 00 TURF AND GRASSES

PART 1 GENERAL

1.3 SUBMITTALS

Add Section C.

- C. If not specified submit grass seed and fertilizer mix design, application rate, and name of supplier prior to ordering materials.

DIVISION 33 UTILITIES

General Note; Design standards and construction specifications for the installation of water and sanitary sewer systems in Wasatch County are oversaw and governed by an independent document supplied by the special service districts. The document, "North Village Special Service District Design Standards Construction Specifications and Standard Drawings" latest revision dated May 2008 will be the governing document for this work. If there are any discrepancies between the special service's document and the APWA specifications, the specials service document will take precedence. This document is available on the counties web-site. Work outside the scope of this document will be governed first by this supplement and then by the APWA spec.

SECTION 33 05 02 CONCRETE PIPE AND CULVERT

PART 3 EXECUTION

3.3 INSTALLATION – BOX SECTIONS

Delete Section B. and replace with:

- B. Provide a leveling course under box section. Use a minimum of 8" thick layer of sewer rock unless specified by others and approved by ENGINEER.

SECTION 33 05 20 BACKFILLING TRENCHES

PART 3 EXECUTION

3.2 GENERAL BACKFILLING REQUIREMENTS

Add Section G.

- G. Do not open any more trench than can be sufficiently backfilled in a 24 hour period unless approved by the ENGINEER.

SECTION 33 41 00 STORM DRAINAGE SYSTEMS

PART 1 GENERAL

Delete section 1.3 in its entirety and add the following:

1.3 PERFORMANCE REQUIREMENTS

- A. Vertical Cover:
- RCP (Class 2 through 5) - Reinforced Concrete Pipe (Class to be specified based on fill heights, soil type, etc.) - 1 foot minimum cover
 - NRCP (Class 1 through 3) - Non-Reinforced Concrete Pipe (24" Maximum) (Class to be specified based on fill heights, soil type, etc.) 1 foot minimum cover
 - CMP - Corrugated Metal Pipe (Galvanized) (24" Maximum) 2 foot minimum cover, or pipe diameter, whichever is greater.
 - HDPE - High Density Polyethylene - Corrugated (24" Maximum) 2 foot minimum cover, or pipe diameter, whichever is greater.
 - HDPE - High Density Polyethylene - Smooth Lined (24" Maximum) 2 foot minimum cover, or pipe diameter, whichever is greater.
 - ASP - Aluminized Steel Pipe - Corrugated Metal Pipe with Aluminum Coating (24" Maximum) 2 foot minimum cover, or pipe diameter, whichever is greater.
 - DIP - Ductile Iron Pipe - 1 foot minimum cover
- B. Remove any section of pipe already placed which is found to be out of alignment tolerance, out of round, defective or damaged. Relay or replace without additional cost to OWNER.

PART 3 EXECUTION

Delete section 3.2 in its entirety and add the following:

3.2 INSTALLATION-PIPE AND FITTINGS

- A. All plastic pipe shall be installed per ASTM D 2321 with special consideration towards trench width, embedment, compaction, and flotation and as noted herein.
- B. All concrete pipe shall be installed per ASTM C 1479.
- C. All corrugated metal pipe shall be installed per ASTM A798.
- D. Jetting of backfill shall not be allowed.
- E. Flexible Pipe shall be protected from lateral displacement and vertical movement by equal placement of the embedment material on each side of the pipe. Embedment material around the pipe shall be placed in maximum 6" lifts. Under no circumstances shall flexible pipe be laid in water and no pipe shall be laid in unsuitable trench conditions.
- F. Gaskets shall be installed in strict compliance with pipe manufacturer's recommendations.
- G. Pipe shall be laid to line and grade as shown on the plans. If proper line and grade can not be maintained or if flotation of the pipe was determined to be a concern, a system to anchor and hold the pipe to proper line and grade shall be submitted for

approval prior to laying any pipe.

- H. Use pipe cutting tool acceptable to pipe manufacturer.
- I. Plug pipeline branches, stubs or other open ends which are not to be immediately connected.
- J. Clean interior of pipe of dirt and debris as work progresses.
- K. Insulate dissimilar metals from direct contact with each other using neoprene gaskets or asphalt coatings.
- L. Flowable fill can not be used as backfill material around Aluminized Steel Pipe. Care should be taken that no uncured cement products or steel reinforcing contacts with Aluminized Steel Pipe.
- M. In flexible pipe installations with soil backfill it is required that the pipe bedding and backfill be below the level of the trench box (ASTM D2321). Flowable fill is exempted from this requirement as long as the trench box is removed before the flowable fill becomes zero slump.