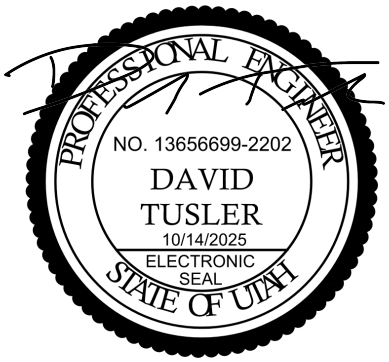
DOCUMENT 00 90 10
ADDENDUM No. 1



PART 1 GENERAL

1.1 DOCUMENT INCLUDES

A. Changes to Plan Set.
B. Changes to the Bid Schedule (Document 00 41 10)
C. Changes to measurement and payment

1.2 CONSTRUCTION CONTRACT

A. The Construction Contract is known as EN029 - Valley Drive Slide Mitigation
B. Date of this Addendum: October 14, 2025

PART 2 CHANGES

2.1 CHANGES TO PRIOR ADDENDA

A. None

2.2 CHANGES TO BIDDING REQUIREMENTS

A. New Bid Schedule 00 41 10 – BID SCHEDULE modified:
    1. Changed Bid Item 113 – *APWA SPEC ROADBASE (1" MINUS, 8" THICK) to APWA SPEC ROADBASE (1" MINUS), changed the quantity to 780 TONS*
    2. Changed Bid Item 124 – *3" MINUS PIT RUN (GRANULAR BORROW)* quantity to 1550 TONS.
B. Revised descriptions and requirements of 00 41 10 – Part 3: Measurement and Payment:
    1. Changed Bid Item 101 – *MOBILIZATION,* additional provisions added.
    2. Changed Bid Item 106 – *CLEAR AND GRUB,* additional provisions added.
    3. Changed Bid Item 108 – *REMOVE TREE,* additional provisions added.
    4. Changed Bid Item 111 – *ROADWAY EXCAVATION (PLAN QUANTITY),* additional provisions added.
    5. Changed Bid Item 113 – *APWA SPEC ROADBASE (1" MINUS),* title updated to match bid schedule changes, additional provisions added.
    6. Changed Bid Item 114 – *3" MINUS PIT RUN (GRANULAR BORROW)*, additional provisions added.

2.3 CHANGES TO AGREEMENT AND OTHER CONTRACT FORMS

A. None

2.4 CHANGES TO CONDITIONS OF THE CONTRACT

A. None

2.5 CHANGES TO SPECIFICATIONS

A. Added specification section - *33 05 02 S -12-INCH DIAMETER PERFORATED CONCRETE PIPE*

2.6 CHANGE TO DRAWINGS

A. All Sheets – Title block project name has been updated to "*EN029 - Valley Drive Slide Mitigation"*
B. Sheet SD1 – Note 7 has been updated to reflect a 3'x3' block instead of a 2'x2' box.

2.7 CLARIFICATIONS

A. None

END OF SECTION

DOCUMENT 00 41 10
BID SCHEDULE

PART 1 GENERAL

1.1 DOCUMENT INCLUDES

A. Bid schedules.
B. Measurement and payment provisions.

1.2 CONSTRUCTION CONTRACT

A. The Construction Contract is known as:
EN029 - Valley Drive Slide Mitigation

1.3 REFERENCES

A. APWA 01 29 00: Payment Procedures.
B. Document 00 50 00: Agreement.

PART 2 BID SCHEDULES

2.1 BASE BID

A. Bid Schedules No. 1 below describe work basic to the Contract.

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BID SCHEDULE No. 1

20th St - Valley Drive & Harrison Blvd, EN012 - 20th Street & Valley Drive Intersection Improvements

ITEM NO.	DESCRIPTION	EST QTY	UNIT	UNIT PRICE	AMOUNT
101	MOBILIZATION	1	LS		
102	TRAFFIC CONTROL	1	LS		
103	SWPP PLAN, CLEANING, DUST CONTROL, WATERING	1	LS		
104	CONSTRUCTION STAKING AND SURVEYING	1	LS		
105	QUALITY ASSURANCE AND TESTING	1	LS		
106	CLEAR AND GRUB	1	LS		
107	UTILITY INVESTIGATION	15	HR		
108	REMOVE TREE	25	EA		
109	REMOVE CURB AND GUTTER	211	LF		
110	REMOVE ASPHALT PAVEMENT	1188	SY		
111	ROADWAY EXCAVATION (PLAN QUANTITY)	1492	CY		
112	REMOVE STORM DRAIN BOX	1	EA		
113	APWA SPEC ROADBASE (1" MINUS)	780	TONS		
114	3" MINUS PIT RUN (GRANULAR BORROW)	1550	TONS		
115	ASPHALT PAVING (PG 58-28 SP - 1/2 CLASS II) 6" THICK	402	TONS		
116	INSTALL CURB AND GUTTER	288	LF		
117	REMOVE GUARDRAIL	334	LF		
118	INSTALL MIDWEST 31" W-BEAM GUARDRAIL 6-FT WOOD POST	334	LF		
119	PAINT STRIPING	1	LS		
120	UDOT STD POST P3, SLIP-BASE ANCHOR, AND MOUNT	6	EA		
121	SIGNS	13	EA		
122	TENSAR NX850 GEOGRID	2252	SY		
123	HYDRAULIC EROSION CONTROL PRODUCT (HECP) TYPE 3	3158	SY		
124	H-PILES	3100	LF		
125	CLEANOUT BOX	1	EA		
126	CATCH BASIN w/ CURB INLET	1	EA		
127	12" REINFORCED CONCRETE PIPE - PERFORATED	208	LF		

Total = $ _____

Schedule 1 Total in Words _____

Signature _____

PART 3 MEASUREMENTS AND PAYMENT

3.1 GENERAL

A. See measurement and payment procedures in APWA Section 01 29 00.

B. ENGINEER will take all measurements and compute all quantities.

C. CONTRACTOR will verify measurement and quantities.

D. CONTRACTOR will provide all equipment, workers, and survey crews to assist ENGINEER in making measurements.

E. Units of measurement are listed above in the bid schedule(s).

3.2 MOBILIZATION, Bid Item No. 101

A. Measured by lump sum (LS).

B. The Contractor shall be responsible for providing a suitable staging area and access for pile driving operations. Due to site constraints, direct access from the street may not be feasible for positioning the pile driving equipment. All costs associated with establishing, grading, and preparing a staging pad or access area necessary to accommodate the pile driver shall be considered incidental to the Mobilization bid item. No separate payment will be made for these activities.

C. Payment covers cost of mobilization, demobilization, installation of temporary facilities and bringing all necessary construction equipment to the site. Payment will be made on a percentage basis as follows.

Percent of Amount Bid for Mobilization to be Paid	Percent of Original Contract Amount Earned
5	40
15	20
40	30
50	10

3.3 TRAFFIC CONTROL, Bid Item No. 102

A. Measured by lump sum (LS).

B. Payment covers traffic control plan (accepted by Ogden City), traffic control technician, flaggers (if necessary), temporary pavement markings, signs, barricades, and all traffic control devices (Refer to Section 01 55 26, Traffic Control) meeting MUTCD and Ogden City Standards. The traffic control plan shall be stamped by a Professional Engineer and submitted to both Emergency service and Ogden City's traffic engineer for approval.

C. Valley Drive is expected to be closed to thru traffic during the project.

D. Payment covers VMS boards (minimum 3) for project notification purposes at least 7 days prior to mobilizing/closing the road.
E. Payment covers specific/custom signs to direct detour traffic to certain destinations (i.e. Dino Park, Golf Course, Rainbow Gardens, Timbermine).

3.4 SWPP PLAN, CLEANING, DUST CONTROL, WATERING, Bid Item No. 103

A. Measured by lump sum (LS).
B. Payment covers the CONTRACTOR in obtaining coverage and following all requirements of the State of Utah DWQ General Permit for Storm Water Discharges from Construction Activities or the "Construction General Permit" (CGP). Permit No.RC00000found at: https://documents.deq.utah.gov/water-quality/stormwater/construction/DWQ-2020-013890.pdf. The CONTRACTOR will be listed as an Operator and Ogden City will be listed as the Owner. Payment covers the CONTRACTOR to meet all requirements of the CGP. Requirements of this permit include, but are not limited to:
    a. Preparation and maintenance of a storm water pollution prevention plan (SWPPP). The SWPPP must be submitted to and approved by City prior to beginning construction.
    b. Submitting a Notice of Intent (NOI) prior to construction.
    c. Maintaining active permit coverage throughout all phases of construction. It is the responsibility of the CONTRACTOR to ensure that permit coverage does not expire. Once the site meets the conditions for terminating CGP coverage, the CONTRACTOR must pass a final inspection with the City SWPPP inspector prior to submitting the Notice Of Termination (NOT) to DWQ.
    d. Installing and maintaining all storm water Best Management Practices (BMPs) in accordance with the approved SWPPP that are not listed as separate bid items, which may include; silt fence, construction fencing, inlet protection, inlet clean-out (if necessary).
    e. Performing necessary Contractor SWPPP inspections in accordance with the SWPPP.
    f. Maintaining all required documentation (inspection reports, corrective action reports, SWPPPs, etc.). Ogden City may request documents associated with the project for up to three years from the date the site is finalized.
C. The CGP outlines the required steps for preparing and maintaining the SWPPP, provides guidelines, examples, templates, BMP specifications, etc.
D. Payment shall cover dust control/watering of the site, daily maintenance of the construction zone, **daily sweeping at a minimum**, maintaining BMP devices, and maintaining general cleanliness of the site and staging areas during the construction process to the satisfaction of the City. Trenches shall be maintained at all times to avoid ruts larger than a 2-inch depth.
E. Payment shall cover temporary water meter rental fees billed to the Contractor from the

City. Contractor will NOT be billed for water usage for the project but must utilize a meter to obtain City water for the project.

3.5 CONSTRUCTION STAKING AND SURVEYING, Bid Items 104

A. Measured by lump sum (LS).

B. Payment shall be as a portion of the lump sum price bid and shall include all costs to provide construction surveying and staking for the project including all labor by the Contractor's Surveyor, equipment, materials and supplies necessary to provide survey preparation, control, staking offsets and markers necessary for construction of the water main, roadway, curb & gutter elevations, sidewalk elevations, driveways, and appurtenances associated with the project.

3.6 QUALITY ASSURANCE AND TESTING, Bid Items 105

A. Measurement will be made by lump sum (LS).

B. Payment shall be for all costs for the Contractor to supply 3rd party testing for quality control/assurance throughout the duration of the project. Testing is to follow Ogden City Standards and be according to APWA Section 01 45 00.

C. Payment shall include submittals to the ENGINEER before construction and reports to the ENGINEER during construction. Notify Owner (ENGINEER or Inspector) to coordinate location of tests.

D. Payment shall include testing on all concrete according to APWA Section 03 30 05. Frequency of testing shall be per day of pouring and not per truck.

E. Payment shall include testing on all asphalt surfaces according to Ogden Standards and Section 32 12 05 SP. Asphalt shall be considered 500 tons to 1500 tons of asphalt and shall be tested accordingly.

3.7 CLEAR AND GRUB, Bid Items 106

A. Measured by lump sum (LS).

B. Clear and grub includes the removal of items within the cut/fill line including but is not limited to incidental landscaping items and tree roots/STUMPS. Excavated backfill material may be used as fill at locations outside of the roadway section as allowed by the ENGINEER. Includes disposal of excess excavated material.

C. Tree removal for trees exceeding larger than 20 inches measured at a point 2 ft above existing ground are not included in the Clear and Grub bid item and shall be paid for separately.

D. Excavation completed for CONTRACTOR'S benefit or excavation error, dewatering of excavation slough or overbreak is incidental work.

E. For material ordered removed and replaced (authorized extra excavation and backfill), measurement of quantities for payment shall be made to the following **pay limits**.

1. Upper limit of excavation is the proposed excavation limit.

2. Lower and lateral limits are as authorized by ENGINEER.
3. Volumes of open spaces (e.g. manholes, pipes, etc.) will not be measured in backfill calculations.

3.8 UTILITY INVESTIGATION, Bid Items 107

A. Measurement will be made by counting the actual number of hours of work completed by the machine and operator to investigate miscellaneous underground features as required by the ENGINEER (HR). No allowance of time will be made for transporting the backhoe to and from the job site when the backhoe is located on the site of the Contract.

B. Payment covers furnishing and providing labor and equipment for investigation of existing miscellaneous pipelines, wires and cables, and sub-surface features as **required by the ENGINEER**. ENGINEER must approve time before Contractor is to proceed with any paid utility investigation.

3.9 REMOVE TREE, Bid Items 108

A. Measured per each tree and stump (EA) removed as one.

B. Remove all trees with a circumference larger than 20 inches measured at a point 2 ft above existing ground.

i. A tree consists of stump, root, trunk, branches, and foliage.

ii. Multiple leaders rising from a common root will not be counted separately.

C. Payment includes removal and disposal of tree and stump and grinding of stump. Contractor shall remove stump and root 2 feet below existing ground or base of proposed grade (ex. base of pavement section or base of driveway UTBC) whichever is greater.

3.10 REMOVE CURB AND GUTTER, Bid Item 109

A. Measurement will be made by linear foot (LF), measured along the top back of curb (TBC).

B. Payment covers the cost of furnishing all necessary materials and equipment, labor, placement, compaction, and testing to place curb and gutter in accordance with Ogden City Standard Drawing RD-4 (Refer to Section 32 16 13, Driveway, Sidewalk, Curb, Gutter).

C. Payment includes formwork, joints, expansion, and dowelling into the existing curb and gutter.

D. Payment includes curb & gutter transitions from type “A” (Or B1) to existing.

E. Payment includes sealing the concrete with a curing compound.

3.11 REMOVE ASPHALT PAVEMENT, Bid Items 110

A. Measured by square yard (SY) of asphalt pavement removed.

B. Remove Asphalt Pavement shall be limited to the locations indicated on the Drawings

(plan quantity) or as directed by the Engineer. No direct payment shall be made for removal at locations not on the Drawings unless written direction is provided by the Engineer. The unit price named shall include all costs associated with; saw cutting; demolition, removal, and disposal of waste material; and all other work or materials required to complete the work. (Refer to Section 02 41 14, Pavement Removal).

3.12 ROADWAY EXCAVATION (PLAN QUANTITY), Bid Items 111

A. Measured by cubic yard (CY).

B. Payment includes all costs incidental to roadway excavation. Pay quantities will be computed in the original position to the neat lines and grades or pay limits of excavation specified using the given plan quantities.

C. Roadway excavation includes the removal of all items, not including roadway asphalt, within the proposed project limits including, but not limited to native soil, dirt fill, rocks, boulders, tree roots, and any other material removed to the designed depth for the proposed engineered roadway. Includes the hauling and disposal of excavated material.

D. Excavation for all slope grading shall be included in the payment for Roadway Excavation.

E. Excavated material shall be reused in fill areas where feasible. This is a net export quantity, no additional payment will be made for material used in embankment or as backfill.

F. Excavation completed for CONTRACTOR'S benefit or excavation error, dewatering of excavation slough or overbreak is incidental work.

G. For material ordered removed and replaced (authorized extra excavation and backfill), measurement of quantities for payment shall be made to the following **pay limits**.

1. Upper limit of excavation is the proposed excavation limit.
2. Lower and lateral limits are as authorized by ENGINEER.

3.13 REMOVE STORM DRAIN BOX, Bid Item No. 112

A. Measurement will be for each (EA) storm drain box removed as shown on the plans or directed by the Engineer.

B. Payment includes all labor, equipment, excavation, removal, and disposal of the existing storm drain box and associated components (grates, frames, risers, etc.). Backfilling, compaction, and restoration of disturbed areas are incidental to this item. Protection of existing pipe connections of pipe designated to remain. Removal of connecting pipes is paid under separate bid items unless noted otherwise (if applicable).

3.14 APWA SPEC ROADBASE (1" MINUS), Bid Items 113

A. Measurement will be made by tons (TONS) of untreated base course placed and compacted.

B. Payment covers the cost of furnishing all necessary materials, aggregate base course, labor, hauling, placement, and compaction to produce an acceptably deep aggregate base course layer per Ogden City Standard Drawings RD-3 and project plan specified thickness. Payment covers the cost of installing the full thickness of aggregate base course layer and preparation for pavement installation. (Refer to Section 33 05 25, Pavement Restoration).

C. Payment covers the cost of all excavation, removal/disposal of existing, and all grading/compaction to finish grade before concrete pour and/or before asphalt paving.

D. No payment will be made for aggregate base course purchased and installed as a temporary construction measure.

E. No payment will be made for aggregate base course purchased and installed as a unclassified backfill or embankment.

F. Aggregate base course shall be untreated. No recycled roadbase (or any recycled material) will be accepted for roadbase on the project.

3.15 3" MINUS PIT RUN (GRANULAR BORROW), Bid Items 114

A. Measurement will be made by tons (TONS) of 3" Minus structural fill placed and compacted.

B. Payment covers the cost of furnishing all necessary materials, granular borrow, labor, hauling, placement, and compaction to produce an acceptably deep structural fill layer per Ogden City Standard Drawings RD-3 and project plan specified thickness. Payment covers the cost of installing the full thickness of granular borrow layer and preparation for roadbase installation.

C. Payment covers the cost of all excavation, removal/disposal of existing.

D. Material must be A-1-a certified for the project and be crushed, and have a well graded 3" – minus aggregate.

E. No payment will be made for granular borrow purchased and installed as unclassified backfill or embankment.

3.16 ASPHALT PAVING (PG 58-28 SP – ½ CLASS II), Bid Items 115

A. Measurement will be made by tons (TONS) of HMA placed per project plans and specifications. Asphalt shall be Class II per Section 32 12 05 SP.

B. Payment covers the cost of furnishing all necessary materials, asphalt, tack coat equipment, labor, hauling, placement, and compaction to produce an acceptably deep excavation asphalt section per Ogden City Standard Drawing RD-3. Payment covers the cost of installing the full thickness of hot-mixed, hot laid asphalt concrete pavement (with no more than 15% recycled asphalt content per Ogden City Standards). Refer to Section 32 12 05 SP, Bituminous Concrete for more details.

3.17 INSTALL CURB AND GUTTER, Bid Item No. 116

A. Measurement will be made by linear foot (LF) of concrete curb and gutter installed.

B. Payment includes all costs associated with labor, materials, equipment, coordination, and appurtenances required to install curb and gutter as detailed in the plans and specified in the Ogden City Standards, complete and in place. This includes:

1 Excavation, grading, and subgrade preparation.
2 Formwork, reinforcement (if required), concrete placement, and finishing.
3 Curing and protection of newly installed curb and gutter.
4 Backfilling and restoration of disturbed areas.
5 Removal and disposal of excess materials and debris.

C. All work shall conform to APWA Standard Specification 32 16 13.

3.18 REMOVE GUARDRAIL, Bid Item 117

A. Measured by linear foot (LF) of guardrail removed.

B. Payment includes dismantling, removal, and disposal of existing guardrail components.

C. All work shall conform to APWA Standard Specification 02 41 13

3.19 INSTALL MIDWEST 31" W-BEAM GUARDRAIL 6-FT WOOD POST, Bid Item 118

A. Measured by linear foot (LF) of installed guardrail.

B. Payment includes furnishing and installing Midwest 31" W-beam guardrail with 6-ft wood posts, including all materials, labor, and equipment necessary for installation per project plans

C. All work shall conform to APWA Standard Specification 34 71 13.

3.20 PAINT STRIPING, Bid Item 119

A. Measurement will be made by lump sum (LS).

B. Payment covers the cost of furnishing all necessary materials, labor, and transportation to restripe the roadway after patching/paving is completed. All impacted striping shall be restored as shown in the plans.

C. Payment covers any temporary measures required (i.e., traffic control, tabbing) to delineate striping between paving and striping.

3.21 UDOT STD POST P3, SLIP-BASE ANCHOR, AND MOUNT, Bid Item 120

A. Measured per each post system (EA).

B. Payment includes all work incidental to the installation of post according to UDOT Standard, including but not limited to the post, anchor hardware, and concrete foundation. Posts shall only be bolted in the sidewalk if there is no park strip and the sidewalk is 6' wide or greater.

C. As part of this bid item, contractor shall restore and return "in like kind" and in better or equal condition, the area impacted as a result of the sign installation.

D. Refer to UDOT Standard drawings SN1, SN2B, SN8, SN9A, SN9B, SN10, SN11A, SN12A & SN12B for post, hardware, and anchor elements.

3.22 SIGNS, Bid Items 121

A. Measured per each sign (EA).

B. Payment includes all work incidental to the fabrication, installation, and placement of a sign, including but not limited to the sign and mounting hardware.

3.23 TENSAR NX850 GEOGRID, BID Items 122

A. Measurement will be made per square yard (SY) of geogrid placed per project plans and specifications.

B. Payment covers the cost of furnishing all necessary materials, appurtenances, and equipment necessary to place the geogrid per the plans.

3.24 HYDRAULIC EROSION CONTROL PRODUCT (HECP) TYPE 3, BID Items 123

A. Measured and paid for per square yard (SY) of Hydraulic Erosion Control Product (HECP) Type 3 placed, as specified in the contract documents and shown on the plans.

B. Payment includes furnishing all labor, materials, equipment, surface preparation, application, and any incidental work required to install the HECP per manufacturer's recommendations and project specifications. Application shall ensure uniform coverage, and product shall meet performance standards for Type 3 HECP, including effectiveness in high-flow conditions and slope stabilization.

C. No separate payment will be made for re-application due to Contractor error or for failed materials not meeting the project's erosion control performance standards.

3.25 H-Piles, BID Items 124

A. Measured and paid for on a per linear foot (LF) of driven pile.

B. Payment includes all labor, equipment, furnishing, and driving piles at the locations and to the depths specified in the plans. Preparation of a suitable crane pad is included in this

item.

C. Refer to Section 31 62 16 S and the Geotechnical report.

3.26 CLEANOUT BOX, BID Item 125

A. Measured and paid for per each (EA) Cleanout Box installed per the plans and specifications.

B. Payment includes all labor, equipment, furnishing and installing each type of precast concrete storm drain manhole or precast concrete storm drain catch basin, complete, including, but not limited to: additional excavation; reinforced concrete; supplying and installing all precast structures, risers, grates, and covers; ladder rungs; grouted channel troughs; connection to existing and/or new pipes, backfill material, compaction, testing, materials and labor for backfill, and all other items needed to complete the work including cleaning and placing structures in service.

C. The connection to any pipe culvert or other drainage feature will be incidental to construction and no separate payment will be made for this work.

D. The City will make no separate payment for testing upon failure of visual inspection.

3.27 CATCH BASIN W/ CURB INLET, BID Item 126

A. Measured and paid for on a per each (EA) Catch Basin w/ Curb Inlet installed per the plans and specifications. Measurement to be by actual field count of each type, and size of installed precast concrete structure identified on the bid schedule and in the plan set.

B. Payment includes all labor, equipment, furnishing and installing each type of precast concrete storm drain manhole or precast concrete storm drain catch basin, complete, including, but not limited to: additional excavation; reinforced concrete; supplying and installing all precast structures, risers, grates, and covers; ladder rungs; grouted channel troughs; connection to existing and/or new pipes, backfill material, compaction, testing, materials and labor for backfill, and all other items needed to complete the work including cleaning and placing structures in service.

C. Payment also covers all costs for labor, equipment, and material required to raise and concrete collar the structure to the finished asphalt grade.

D. The connection to any pipe culvert or other drainage feature will be incidental to construction and no separate payment will be made for this work.

E. The City will make no separate payment for testing upon failure of visual inspection.

F. Payment for base course and asphalt restoration are covered under their respective bid items.

3.28 12" REINFORCED CONCRETE PIPE - PERFORATED, Bid Items 127

A. Measured and paid for on a linear foot basis (LF), measured in the field along centerline of pipe, to the nearest foot, for the type, size and class indicated in the Bid Schedule between structures. Unless indicated otherwise, measurement to be along the pipe from the inside face to inside face of manholes, catch basins, or other structures, or to the end of the pipe where no structure exists, with no deduction for fittings.

B. Payment includes but is not limited to: Furnishing and installing pipe of the material, type, size and class indicated, including gaskets, adapters, plugs; trench excavation; excavation for bells; utility potholing; capping or plugging of the existing storm drain pipe(s) to be abandoned; supplying, installing, compacting and testing imported trench zone and pipe zone materials **(including free draining granular backfill, and drainage geotextile)** in accordance with the drawings and Ogden City Standards; trench boxes or shoring as needed; dewatering; management of storm water during construction; trench dewatering; connection of the existing storm drain to the new storm drain; reconnection of existing storm drain laterals to the new storm drain manholes; connecting new storm drain to existing structures; pipe cutting; field collars; field closures; cleaning new pipe and providing CCTV inspection of new pipe prior to acceptance by owner, commissioning pipelines. There will be no payment for over excavation unless approved in written form by the engineer prior to the excavation. Payment shall also include measures to protect the new pipeline from being damaged or filled with sediment from a runoff event during construction.

C. Payment includes furnish and installation of the free-draining granular backfill to surround the pipe per project plans/specifications.

D. Payment includes furnish and installation of the drainage geotextile to wrap the pipe as necessary and wrap the free-draining granular backfill surrounding the pipe per project plans and specifications.

E. Payment for base course material and asphalt surface restoration are covered under their respective bid items.

END OF DOCUMENT

SECTION 33 05 02 S
12-INCH DIAMETER PERFORATED CONCRETE PIPE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Material and procedures for fabricating and installing 12-inch diameter perforated concrete pipe.

1.2 REFERENCES

A. ASTM C14: Concrete Sewer, Storm Drain, Culvert Pipe

B. ASTM C76: Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe

C. ASTM C444: Standard Specification for Perforated Concrete Pipe

D. ASTM C1479: Installation of Precast Concrete Sewer, Storm Drain, Culvert Pipe Using Standard Installations

1.3 SUBMITTALS

A. Reinforced concrete pipe design summary.

B. Manufacturer's proof of certification.

PART 2 PRODUCTS

2.1 CONCRETE

A. Use ASTM C150 or ASTM C1157 cement unless otherwise specified.

B. Meet the concrete performance requirements per the appropriate manufacturing specification, either ASTM C1577 or ASTM C1504.

2.2 REINFORCING

A. Use reinforcement tables in ASTM C76 based on the required class of pipe.

2.3 JOINTS

A. Use bell and spigot type joints.

B. To increase groundwater infiltration, do not use rubber gaskets or mastic joint sealant.

C. Joint wrap is not required. Use ASTM C 877 if joint wrap is specified.

D. Mortar grout is not required.

E. Joints shall be of such design and the ends of the concrete pipe sections so formed that the pipe can be laid together to make a continuous line of pipe.

F. Joint gap tolerances are 7/8 inch. Pipe can be deflected so that one side of the pipe has a joint gap of 7/8 inch while the other side of the joint has no joint gap.

2.4 PERFORATIONS

A. Type 1 – Perforations shall be circular, with a diameter of ½ inch, with a total of sixteen (16) perforations per eight-foot section of pipe. Perforations shall be arranged in rows parallel to the axis of the pipe and shall be 18 inches center to center along the rows. Perforations shall be staggered so that the first and third rows of perforations begin 24 inches from the bell end of the pipe, and the second and fourth rows begin 18 inches from the bell end of the pipe. The rows shall be spaced over not more than 165^{o} of the circumference. Rows shall be symmetrically arranged with respect to the intended top or bottom of the pipe.

B. Type 2 – A single circular 2-inch diameter core hole located two feet from the bell end of the pipe.

C. Type 3 – Rectangular slots cut into the bell and spigot ends of each section of pipe with a dimension of 2 inches along the circumference of the pipe and 1.5 inches along the flow line of the pipe, producing an opening of three square inches.

2.5 MANUFACTURE

A. Use ASTM C76 for manufacturing reinforced concrete pipes.

B. Perforations shall be completed by the manufacturer.

2.6 QUALITY CONTROL

A. Pipe and tile, ASTM C497.

PART 3 EXECUTION

Meet all applicable local, state, and federal statutes, regulations, codes, etc., including applicable OSHA standards, in the construction of concrete pipe culverts and ancillary appurtenances.

3.1 BEDDING AND BACKFILL

A. Use sand or angular crushed gravel with a maximum particle size of 3/4-inch for bedding and haunches.

B. Wrap the trench with geotextile fabric.

C. Follow Ogden City specifications for trench backfill.

3.2 INSTALLATION

A. Inspect precast elements for defects before lowering into trench.

B. Repair or replace any defective, damaged or unsound precast elements.

C. Use a trench width adequate to place and compact bedding material.

D. Dig bell holes so that the pipe is supported along the barrel of the pipe.

E. Lay precast elements starting at the downstream end and working upstream. Place the bell of the pipe upstream.

F. Carefully lower precast elements into the trench with suitable equipment to prevent damage.

G. Remove all dirt and foreign material from joints. Prevent dirt and material from re-entering joints. Joint walls must be clean, dry, frost-free, and free of oil and grease and any other contaminants.

H. For Type 1 perforations, install the pipe so that all perforations are on the bottom half of the pipe. Install geotextile fabric on the bottom half of the pipe to prevent sand and gravel from entering the pipe.

I. For Type 2 perforations, install the pipe so that the perforations are on the bottom of the pipe. Install geotextile fabric around the opening to ensure gravel and bedding material do not enter the pipe.

J. For Type 3 perforations, install the pipe so that the slots on the bell and spigot are aligned along the bottom of the pipe. Install geotextile fabric around the opening to ensure gravel and bedding material do not enter the pipe.

K. Deflect the pipe to meet the required turn radius by allowing a joint gap of up to 7/8-inch on one side of the pipe. Joint gaps exceeding 7/8-inch must be approved by manufacturer's engineer.

L. Do not attempt to force pipe to grade.

END OF SECTION