September 28, 2021

ADDENDUM NO. 1

CITY OF PASS CHRISTIAN, MISSISSIPPI
EAST SMALL CRAFT HARBOR
HURRICANE ZETA REPAIRS

This Addendum is hereby made a part of the Contract Documents to the same extent as though it were originally included therein. Receipt of this Addendum must be acknowledged in the space designated in the Bid Proposal. Plan Holders are also requested to acknowledge receipt of this Addendum by signing on the form provided and returning via FAX to Engineer, at 228-467-2720 or emailing to ***COMPTON@COMPTONENGINEERING.COM***. This Addendum adds a Restoration specification, a Traffic Markings specification and revises the bid form to include damage resulting from Hurricane Ida.

1. In SPECIFICATIONS, delete the original Bid Proposal in its entirety, and substitute the attached "Bid Proposal". Any bid which is based on the old Bid Proposal may be rejected and not considered for award. The new bid form revises the layout to include a Bid Schedule No. 1 (Hurricane Zeta Repairs) and a Bid Schedule No. 2 (Hurricane Ida Repairs) with the alternate bid item for proposed Hazard Mitigation work remaining unchanged.

2. In the SPECIFICATIONS, Add Specification Item No. 7 Restoration of Disturbed Facilities.

3. In the SPECIFICATIONS, Add Specification Item No. 8 Traffic Markings

4. In the Plans, Replace Sheets 3.0, 4.0 and 4.1 with those included with this Addendum, due to revisions/corrections incorporated into the sheets.

5. In the Plans, Add Sheets 4.2 and 4.3, which provide information regarding work to be included on Bid Schedule No. 2 for damage resulting from Hurricane Ida.

COMPTON ENGINEERING, INC.
CONSULTING ENGINEERS

Robert A. Escher

Bob Escher, P.E.

ACKNOWLEDGE RECEIPT OF ADDENDUM NO. 1
(Return via FAX to 228-467-2720)

_____
(Signature)

_____
(Printed Name)

_____
(Company Name)

DATE RECEIVED:_____

BID PROPOSAL
(To be submitted in duplicate, one original and one copy)
(Revised per Addendum #1)

Proposal of _____

(hereinafter called "Bidder"), organized and existing under the laws of the State of

_____ doing business as _____*.

To City of Pass Christian, Mississippi, (hereinafter called "Owner").

Gentlemen:

The Bidder, in compliance with your invitation for bids for:

CITY OF PASS CHRISTIAN
HURRICANE ZETA REPAIRS
EAST SMALL CRAFT HARBOR

having examined the specifications with related documents and the site of the proposed work, and being familiar with all of the conditions surrounding the construction of the proposed project including the availability of materials and labor, hereby proposes to furnish all labor, materials and supplies, and to construct the project in accordance with the Contract Documents, within the time set forth therein, and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the Contract Documents, of which this proposal is a part.

Bidder hereby agrees to commence work under this contract on or before a date to be specified in written "Notice to Proceed" of the Owner and to fully complete the project within 90 consecutive calendar days thereafter as stated hereafter in this proposal. Bidder further agrees to pay as liquidated damages, the sum of $450.00 for each consecutive calendar day thereafter as hereinafter provided in Paragraph B of the Supplemental General Conditions.

Bidder acknowledges receipt of the following addendum:

_____

*Insert corporation, partnership or individual as applies

Complete unit price in words and figures under Item Description and the Extension (Unit Price x Quantity) in figures.

Bidder agrees to perform all the work described in the specifications and shown on the plans, for the following unit prices:

BID SCHEDULE NO. 1

NO.	ITEM DESCRIPTION	QUANTITY		EXTENSION
1-A	DEMOLITION	1	L.S.	
	_____			$ _____
	_____ ($ _____)			
2-A	SELECT SANDY BACKFILL (LVM)	150	CY	
	_____			$ _____
	_____ ($ _____)			
3-A	CONCRETE STEMWALL REPAIRS	1	L.S.	
	_____			$ _____
	_____ ($ _____)			
3-B1	CONCRETE SIDEWALK/SLOPE PAVING REPAIRS	105	SY	
	_____			$ _____
	_____ ($ _____)			

3-C	PERMANENT JERSEY BARRIERS	624	LF	$ _____
	_____ ($ _____)			
3-E	WEST BREAKWATER WALL ACCESS RAMP COLUMN FOUNDATION(S)	1	LS	$ _____
	_____ ($ _____)			
3-F	PROVIDE AND INSTALL UTILITY DUCT COVERS ON PIER C-4	17	EA.	$ _____
	_____ ($ _____)			
3-G	PROVIDE AND INSTALL UTILITY DUCT COVERS ON PIER C-5	14	EA.	$ _____
	_____ ($ _____)			
3-H	PROVIDE AND INSTALL UTILITY DUCT COVERS ON PIER C-6	8	EA.	$ _____
	_____ ($ _____)			
3-I	PROVIDE AND INSTALL UTILITY DUCT COVERS ON PIER P-5	7	EA.	$ _____
	_____ ($ _____)			
3-J	PROVIDE AND INSTALL UTILITY DUCT COVERS ON PIER P-6	3	EA.	$ _____
	_____ ($ _____)			
3-K	PROVIDE AND INSTALL UTILITY DUCT COVERS ON SEAFOOD PRO-CESSOR'S ACCESS BRIDGE	540	LF	$ _____
	_____ ($ _____)			
4-A	WEST BREAKWATER WALL - HANDICAPPED FISHING PIER LANDING, 3' WIDE X 35' LONG	3	EA	$ _____
	_____ ($ _____)			
4-B	PIER C-6 HANDICAPPED ENTRANCE REPAIRS	1	LS	$ _____
	_____ ($ _____)			
5-A	UNDERGROUND/FLUSH GRADE PULL BOX	1	EA.	$ _____
	_____ ($ _____)			
5-B	REPAIR AND RE-INSTALL HANDRAIL	1	LS	$ _____
	_____ ($ _____)			

5-C	UTILITY SERVICE HANGERS	25	EA	
				$
				($)
6-A	SALVAGE OF MISCELLANEOUS ITEMS - (SHOWN AS A NEGATIVE NUMBER)	1	LS	
				$
				($)

TOTAL BID SCHEDULE NO. 1:

($)

(AMOUNTS ARE TO BE IN WORDS AND FIGURES. IN CASE OF DISCREPANCY, THE AMOUNT SHOWN IN WORDS WILL GOVERN.

BID SCHEDULE NO. 2- HURRICANE IDA REPAIRS

ITEM NO.	DESCRIPTION	QUANTITY		EXTENSION
1-B	DEMOLITION	1	L.S.	
				$
				($)
2-B	SELECT SANDY BACKFILL (LVM)	1,000	CY	
				$
				($)
3-B2	CONCRETE SIDEWALK/SLOPE PAVING REPAIRS	30	SY	
				$
				($)
5-D	REPAIRS TO THE WEST BREAKWATER WALL ACCESS RAMP SUPPORTS	1	LS	
				$
				($)
7-A	GRANULAR SANDY CLAY (CLASS 9, GROUP C, FM), 8" THICKNESS	220	SY	
				$
				($)
7-B	2" BINDER COURSE	220	SY	
				$
				($)
7-C	2" SURFACE COURSE	220	SY	
				$
				($)
7-D	CONCRETE CURB RESTORATION (ALL TYPES)	185	LF	
				$
				($)

7-E	48" HDPE DOUBLE-WALLED DRAINAGE PIPE	10	LF	
				$
				($)

TOTAL BID SCHEDULE NO. 2- HURRICANE IDA REPAIRS

($)

(AMOUNTS ARE TO BE IN WORDS AND FIGURES. IN CASE OF DISCREPANCY, THE AMOUNT SHOWN IN WORDS WILL GOVERN.

ALTERNATE NO. 1- CONCRETE BARRIER RAIL

NO.	ITEM DESCRIPTION	QUANTITY		EXTENSION
3-D	CONCRETE BARRIER RAIL	624	L.F.	
				$
				($)

TOTAL ALTERNATE NO. 1- ALTERNATE NO. 1- CONCRETE BARRIER RAIL

($)

(AMOUNTS ARE TO BE IN WORDS AND FIGURES. IN CASE OF DISCREPANCY, THE AMOUNT SHOWN IN WORDS WILL GOVERN.

Bidder understands that the Owner reserves the right to reject any or all bids.

The Bidder agrees that this bid shall be good and may not be withdrawn for a period of 90 calendar days after the scheduled closing

Upon receipt of written notice of the acceptance of this bid, bidder will execute the formal contract within 10 days and deliver a Surety

($)

is to become the property of the Owner in the event the contract and bond are not executed within the time above set forth, as

Respectfully submitted:

By _____
Title _____
(SEAL - if bid is by corporation)

Address:

_____
_____
_____

Cert. of Resp. No. _____

BID SUMMARY
TOTAL BID SCHEDULE NO. 1:
($)
TOTAL BID SCHEDULE NO. 2:
($)
TOTAL ALTERNATE NO. 1- ALTERNATE NO. 1- CONCRETE BARRIER RAIL
($)

ITEM NO. 5

MISCELLANEOUS REPAIRS

(A) SCOPE OF WORK

(1) This work shall consist of the following:

(a) Provide and install the one (1) large underground/flush grade pull box on the west side of the harbor adjacent to the bulkhead wall.

(b) Repair and Re-Install the handrail to be attached to the concrete stemwall at the Seafood Processor's Access Bridge

(c) Provide and install (25) twenty-five, hot-dipped galvanized utility supports in the underside of the utility chase on the Seafood Processor's Access Bridge.

(d) Repair the ADA ramp and replace the vertical pipe supports on the stem wall in the southwest parking lot of the East Small Craft Harbor. (Bid Schedule No. 2)

(B) MATERIALS

(1) Repair and Re-install existing handrail – Wedge anchors, lock washers, etc. as indicated on the plans.

(2) Large Underground/Flush Grade Pull Box – Non-Traffic Rated

(a) Armorcast Tier 22, 30"x60"x36" FRP Vault Assembly with a 20,000-pound load rating and an ANSI TIER rating of 15, or approved equal.

(b) Flush-to-grade, constructed of polymer concrete. Plastic and fiberglass boxes will not be accepted.

(c) Concrete gray in color.

(d) Covers shall have a minimum coefficient of friction of 0.50.

(e) Covers shall be gasketed with cast logo representing intended service type (ELECTRICAL).

(3) Utility Service Hanger Support – Hot-dipped galvanized steel plate, ¾" Type 316 SST chemically-set anchors. Adhesive shall be Hilti-HY 150 Max, or approved equal.

(4) ADA ramp vertical supports shall consist of Schedule 80, hot-dipped galvanized pipe with top and bottom base plates. The existing pipe supports are believed to be 4" I.D. with 6.5"x6.5"x1/2" thick base plates using (4) ½" diameter wedge anchors

(C) EXECUTION

(1) Large Underground/Flush Grade Pull Box – Non-Traffic Rated

(a) Install the pull box and provide clean sand backfill as directed by the Engineer or his representative.

(2) Repair and Re-Install Handrail

(a) Where handrails are to be installed along the stemwall of the sheetpile wall, cut away existing wedge anchors that are damaged and cannot be reused due to adjustment in the final location of the handrail, chip away loose concrete, repair broken areas of concrete with approved epoxy filler anchored to adjacent sound concrete. Drill pilot holes for the new anchor bolt locations ensuring the correct alignment along the wall. Avoid placing anchors within 2” of the edge of the concrete, or from contraction or expansion joints.

(b) After re-installation of the handrail, clean all deleterious material from the broke weld that would hinder the ability to obtain a clean weld in joining the handrail sections. Provide a full-circle fillet weld around the circumference of the pipe and spray with cold-galvanize material.

(3) Utility Service Hanger Support

(a) Drill pilot holes for the new anchor bolt locations.

(b) Install hangar in accordance with the drawings. Avoid placing anchors within 2” of the edge of the concrete, or from contraction or expansion joints.

(4) West Access Ramp Supports – (Bid Schedule No. 2)

(a) Provide temporary support for the access ramp to establish a level surface in compliance with ADA guidelines.

(b) Remove all existing pipe supports from the ramp, as well as all remains of anchor bolts in the stem wall.

(c) Repair concrete gouges and chips to re-establish the profile of the stem wall.

(d) Drill pilot holes for the new anchor bolt locations ensuring the correct alignment along the wall. The new supports will have to be offset from the existing locations to avoid existing broken or damaged anchor bolts. Avoid placing anchors within 2” of the edge of the concrete.

(e) Install new wedge anchors with a concrete epoxy into the pre-drilled holes.

(f) Fabricate pipe supports based on the vertical length required at the new anchor bolt locations positioned on the stem wall. New pipe supports shall be fastened to the access ramp by full penetration welds followed by an application of cold galvanize.

(g) Upon completion of the repairs to the supports and installation of new foundation columns in Bid Schedule No. 1, secure the new pipe supports to the anchor bolts using HDG hex nuts and lock washers.

(D) **METHOD OF MEASUREMENT**

(1) Re-Installation of the existing handrail shall be measured as a lump sum for the handrail repaired and re-installed to the satisfaction of the Owner and Engineer.

(2) Installation of the underground/flush grade pull box shall be measured per each. Any select sandy backfill to be used as directed by the Engineer shall be paid for under a separate pay item.

(3) Utility service hangers on the Seafood Processor's Access Pier shall be measured per each for each hanger satisfactorily installed and accepted.

(4) Removal and replacement of the Access Ramp Supports at the west breakwater wall (i.e., on the stem wall per Bid Schedule No. 2) shall be measured and paid for as a lump sum. This work shall include removing and replacing all existing supports, anchor bolts, performing the necessary concrete repairs to the stem wall and installing new, in-kind.

(E) **PAYMENT**

(1) Payment will be made under PAY ITEM NO.

5-A UNDERGROUND/FLUSH GRADE PULL BOX

($_____) EACH

5-B REPAIR AND RE-INSTALL HANDRAIL

($_____) LUMP SUM

5-C UTILITY SERVICE HANGERS

($_____) EACH

5-D REPAIRS TO THE WEST BREAKWATER WALL ACCESS RAMP SUPPORTS

($_____) LUMP SUM

ITEM NO. 7

RESTORATION OF DISTURBED FACILITIES

(A) SCOPE OF WORK

(1) This work shall consist of the restoration (i.e., remove and replace) of asphalt pavement, curb and gutters, drainage facilities, and incidental work relating thereto where these facilities are encountered within the allowable construction limits as designated in the Drawings and defined in these specifications. Concrete curb and gutter shall match the surface of the existing curb and gutter to which it is being joined.

(2) Also included is the establishment of a live and growing stand of grass and solid sod and placement of erosion control material or rip-rap suitable to stabilize, where necessary, and prevent erosion of all ground areas disturbed in constructing the project, which are within the allowable construction limits.

(3) The Contractor shall furnish all labor, materials, tools and equipment necessary to perform the required work and to complete the work as designated in the accompanying plans and as specified herein.

(4) It is the intent of this contract that existing improvements outside of the public right-of-way and outside of designated easement and construction limits shall be strictly protected from damage. Any damage or restoration required outside of these limits shall be performed at the Contractor's expense. Improvements located within the public right-of-way, designated easement, or construction limits may be removed if needed to facilitate construction, subject to the requirements specified herein.

(5) Contractor shall employ and pay for the services of an independent testing laboratory, subject to the approval of the Engineer, to perform **all** inspections, tests, or approvals as required to demonstrate compliance with the Contract Documents. The Engineer or his representative must witness all field testing for results to be considered valid and acceptable.

(B) MATERIALS

(1) Asphalt Binder Course shall conform to Section 401.02, MDOT Standard Specifications, 2004 Edition. The job mix formula shall meet gradation requirements of Section 401.02.1.2.3 (19.0 mm mix), MDOT Standard Specifications, 2004 Edition.

(2) Asphalt Surface Course shall conform to Section 401.02, MDOT Standard Specifications, 2004 Edition. The job mix formula shall meet gradation requirements of Section 401.02.1.2.3 (9.5 mm mix), MDOT Standard Specifications, 2004 Edition.

(3) Tack Coat shall be Emulsified asphalt grade EA-4 or cutback asphalt grade RC-30, conforming to Section 702, MDOT Standard Specifications.

(4) Material used for road base or parking lot base restoration shall consist of a granular sandy clay mixture, Class 9, Group C in accordance with the MDOT Standard Specifications, 2004 Edition.

(5) Concrete shall conform to the requirements for Class B concrete, MDOT Standard Specifications. Minimum compressive strength shall be 3,500 p.s.i.

(6) Steel reinforcement shall be Billet Steel Bars (Intermediate or Hard Grade), AASHTO Designation 31, or Rail Steel Bars, AASHTO Designation 42.

(7) Steel wire fabric shall conform to the requirements of the Standard Specifications for Welded Steel Wire Fabric for Concrete Reinforcement, AASHTO Designation: M-55.

(8) Curing Materials shall conform to the requirements set out in the Standard Specifications for Liquid Membrane Forming Compounds for Curing Concrete, AASHTO Designation: M-148, Type 2 (White Pigmented).

(9) Expansion joint material shall conform to Standard Specifications for Preformed Expansion Joint Fillers for Concrete (non-extruding and resilient types), AASHTO Designation M-213.

(10) Dowel bars shall be plain round bars of Grade 60 billet steel, AASHTO Designation M-31. Before installation, each dowel bar shall be painted with rust inhibitive primer.

(11) Sleeves for dowel bars shall be metal or plastic at least two inches (2") in length. A suitable stop shall be provided in the sleeve to permit movement of the dowel within the sleeve of at least ¾ ".

(12) Fencing Materials - salvage and re-use existing materials and/or provide new materials to match the original. – N/A

(13) Reinforced Round Concrete Culvert Pipe shall conform to ASTM C-76, Class III, standard strength reinforced concrete culvert pipe, minimum wall classification 'B' conforming to the requirements of AASHTO Designation M-170. The pipe shall be tongue and groove or bell and spigot type, and shall be a minimum of eight feet per section, except for closure pieces. Flared end sections shall conform to Mississippi DOT Standard Specifications, Section 708.04. Pipe joints shall utilize rubber gaskets to form an essentially watertight joint. Gaskets shall meet the requirements of ASTM Designation C-443. Wrap all pipe joints with approved geotextile filter fabric. – N/A

(14) Reinforced Concrete Arch Pipe shall meet the requirements of ASTM Designation C-506, Class III, standard strength reinforced concrete culvert pipe, conforming to the requirements of AASHTO Designation M-206. The pipe shall be a minimum of eight feet per section, except for closure pieces. Flared end sections shall conform to Mississippi DOT Standard Specifications, Section 708.04. All joints shall utilize preformed joint compound conforming to requirements of Federal Specification SS-S00210 (222-A) and AASHTO Designation M-198. Wrap all pipe joints with approved geotextile filter fabric. - N/A

(15) Polyethylene (PE) Drainage Pipe - Corrugated high-density polyethylene pipe with an integrally formed smooth interior of the nominal size listed, in the pipe schedule conforming to ASTM M294 and M252. The pipe shall be supplied from the factory with inlet slots or perforations spaced around the pipe circumference to reduce the effects of groundwater on the buoyancy of the pipe. The location and number of perforations shall be in accordance with the recommendations of the pipe manufacturer. The minimum parallel plate pipe stiffness (per ASTM D-2412) shall be as follows:

Pipe Size	Stiffness (psi)
4" thru 12"	50
15"	42

18"	40
24"	34
30"	28
36"	22
42"	20
48"	18
60"	14

Pipe joints shall incorporate a bell made integral with the pipe, or consist of a separate coupler piece joining plain-end pipes. In either case, all connections shall incorporate a rubber or neoprene gasket to provide a soil-tight connection, and the joint design shall maintain the full structural integrity of the pipe, with minimal likelihood of separation of the joint due to movement of the pipe. All pipe shall be double walled, N-12 pipe as manufactured by ADS or approved equal.

(16) Drainage Structure Castings shall conform to Standard Specifications for Gray Iron Castings, AASHTO Designation: M-105, Class 25.

(17) Sod - Commercially grown Centipede or St. Augustine sod of a type similar in appearance to the existing grass being replaced. - N/A

(18) Geotextile fabric used under crushed limestone shall meet the requirements of Type V in Table 1 of Section 714.13.12 of the Mississippi Standard Specifications for Road and Bridge Construction, 1990 Edition.

(C) CONSTRUCTION REQUIREMENTS

(1) General

(a) All facilities disturbed as a result of construction shall be restored by the Contractor in a prompt manner during the course of construction. Unless unusual circumstances require it, no excavation for pipe-laying operations will be left open over-night or during any extended period without work. If an excavation must be left open, the Contractor will erect lighted barricades and any other necessary traffic control devices to provide adequate protection for the public. Such traffic control devices will be placed in accordance with the Technical Specification section entitled “Maintenance of Traffic”.

(b) All pavement markings and striping disturbed or removed shall be replaced.

(c) Facilities disturbed outside the allowable restoration limits shall be restored by the Contractor, but at no additional compensation.

(2) Restoration - Asphalt Pavement

(a) Whenever the pipeline trench is partially under pavement, prior to placing the final pavement, the existing asphalt surface shall be saw cut to form a smooth uniform edge.

(b) Upon removal of the damaged material, providing for and installing fill material, the contractor shall compact the subgrade to 95% standard Proctor density. The contractor shall retain and compensate an independent testing laboratory to confirm that he is achieving the required density of the backfill material. If required by the Engineer or his representative, density tests may be performed

on each lift of backfill but not less than two tests for the area being repaired. In areas where the density test fails to meet the requirements of this specification, the area shall be recompacted and retested at no additional compensation to the contractor by the Owner. All density tests must be witnessed by the Engineer or his representative to be considered acceptable in complying with the specifications.

(c) In areas where pavement restoration consists of an 8-inch crushed limestone base, 2-inch hot bituminous base course and 2-inch asphalt surface course, the backfill, shall be brought to the subgrade elevation, and then graded to a uniform surface. Installation of crushed limestone base course shall then follow immediately. Crushed limestone mixture shall be placed upon the prepared sub-base and shall then be graded, compacted to the required density and proof rolled. Hot bituminous base course shall then follow immediately.

(d) Crushed Limestone Base, where used, shall be maintained by grading, watering, adding additional crushed limestone mixture, and additional compaction as necessary to maintain local traffic until the asphalt surface course is installed. If necessary to avoid stratification of the base course, the additional crushed limestone mixture shall be blended into the in-place material by scarifying or other approved means.

(e) Just prior to installation of the bituminous surface course, grade the limestone base to a uniform section and at a grade which will ensure positive drainage into the adjacent structures and flush with adjoining remaining pavements, and then compact base to 95% standard Proctor density. The contractor shall retain and compensate an independent testing laboratory to confirm that he is achieving the required density of the limestone base material. If required by the Engineer or his representative, a minimum of two (2) density tests may be performed on the limestone base material. In areas where the density test fails to meet the requirements of this specification, the area shall be recompacted and retested at no additional compensation to the contractor by the Owner. All density tests must be witnessed by the Engineer or his representative to be considered acceptable in complying with the specifications.

(f) The exposed subgrade shall be proof-rolled in the presence of the Owner and Engineer's designated representatives to determine if any soft or yielding spots are evident. Proof rolling will be accomplished by a tandem axle 12 yard, ¾ loaded dump truck or equivalent load. Contractor shall provide a minimum of 24 hours advance notice to Owner and Engineer prior to performing proof roll. If any deficiencies are discovered, the affected areas shall be excavated to depths as designated by the Engineer and backfilled in 8-inch compacted lifts with select borrow material. Each lift shall be compacted to a minimum of 95% standard Proctor density. Costs for any inspections or testing required shall be borne by the Contractor.

(g) The exposed subgrade shall be subjected to follow-up proof roll tests until acceptable.

(h) Tack coat is required under all asphalt courses. Apply heavy tack at joints with adjacent existing asphalt and at transitions where asphalt overlay is feathered.

(i) Installation of hot bituminous base course and asphalt surface courses shall conform to Sections 301 and Sections 401 and 403 MDOT Standard

Specifications. The finished pavement surface shall meet the smoothness tolerances provided in Section 403.03.2 of the MDOT Standard Specifications, unless a variance is otherwise approved by Engineer. Areas that fail to meet this standard shall receive an additional overlay of the existing asphalt, at no additional cost to the Engineer or Owner, to correct this deficiency. At a minimum, the overlay shall extend 20' beyond the affected area in each direction for the full width of the road. Form transitions to adjacent existing surfaces in a neat and professional manner. Costs for all inspections and testing required by the above specifications shall be borne by the Contractor at no additional cost to the Owner. A minimum of two density tests will be required for every 200 square yards of finished pavement installed.

(j) Temporary pavement markings and striping shall be installed by Contractor immediately upon completion of asphalt base and/or surface courses and prior to use by vehicular traffic. The contractor will be required to install temporary pavement markings and striping on all affected streets regardless of whether permanent markings or striping existed before construction or any permanent markings or striping are included as part of this project. The temporary markings and striping shall be maintained until the project is accepted by the Owner.

(k) Permanent pavement markings and striping shall be installed by Contractor unless otherwise designated in the Drawings.

(l) Any subsidence of the asphalt surface which exceeds one half of one inch and which occurs within the one-year warranty period must be corrected at no additional compensation to Contractor. The method of correction is subject to the review and approval of the Engineer and Owner.

(3) Restoration - Curb and Gutter, Sidewalks and Slope Paving

(a) Existing concrete is to be carefully removed by Contractor, avoiding damage to adjacent facilities which are to remain. All debris must be removed from the project area immediately, at Contractor's sole expense.

(b) Where existing construction joints are not located to permit economical removal and replacement of concrete to the existing joint, the Contractor shall make a sawn joint. The purpose of this is to form a neat and straight joint.

(c) Existing culvert pipe and drainage structures shall be carefully preserved in their positions. If necessary and prudent, select sandy backfill shall be used to stabilize these in position to avoid displacement. Any culvert pipe joint exposed by excavation shall be wrapped with an approved filter fabric, to prevent migration of soil into the pipe.

(d) As soon as construction backfill has been brought up to grade, shaped and compacted to 95% standard Proctor density, all concrete items of the types designated herein can be replaced. The contractor shall retain and compensate an independent testing laboratory to confirm that he is achieving the required density of the backfill material. If required by the Engineer or his representative, density tests may be performed on each lift of backfill at intervals of not less than 250 lf or as designated by the Engineer or his representative. In areas where the density test fails to meet the requirements of this specification, the area shall be recompacted and retested at no additional compensation to the contractor by the Owner. All density tests must be witnessed by the Engineer or

his representative to be considered acceptable in complying with the specifications.

(e) The type of curb or combination curb and gutter to be restored shall be of the same type to match the existing.

(f) The concrete used in construction shall be proportioned, mixed, placed and protected in accordance with the provisions and requirements in the MDOT Standard Specifications, 1990 Edition, Section 804 and 2004 Edition, Division 500. Minimum 28-day compressive strength shall be 3500 psi. Any concrete that has not been placed in forms within 1 hour from the time of being batched will be rejected.

(g) Forms shall be of wood or metal, straight, free from warp, of sufficient strength to resist the pressure of the concrete without springing, and shall be cleaned thoroughly and oiled before concrete is placed against them. Bracing and staking of forms shall be such that the forms remain in both horizontal and vertical alignment until their removal.

(h) Concrete items of the types designated shall be configured to match adjacent existing facilities.

(i) Reinforcement shall be placed in exact positions shown on the plans and firmly held during the placing and setting of concrete. Reinforcement for sidewalks and driveways shall consist of 6 x 6 #10 welded wire fabric. Replacement concrete driveways and sidewalks shall have #4 bars, 12” long doweled into the existing concrete at 12” O.C. and shall have a minimum embedment length of 6” into the existing concrete. Metal devices in contact with exterior surface of the structure shall be galvanized. The use of gravel, pieces of broken stone or brick, metal pipe and wooden blocks as spacers will not be permitted.

(j) The concrete for sidewalks and slope paving shall be deposited in a single layer on a moist grade to such depth that after finishing it shall be to the full thickness required and as shown on the plans. The edges and sides shall be as detailed in the Drawings. The edges and sides shall be thoroughly spaded, and the surface tamped sufficiently to consolidate the concrete and bring mortar, for finishing, to the surface.

(k) Finishing:

1. Curb and Gutter - smooth and even with wood float, irregularities of surface of more than 1/8 inch in 10 feet shall not be permitted.
2. Sidewalks and slope paving - Class 6 floated surface finish in accordance with Subsection 804.30, MDOT Standard Specifications, **or match existing finish**
3. After the final finish but before the concrete has taken its initial set, all edges shall be worked with an approved tool.

(l) Edges shall be carefully finished and rounded with an edging tool having a radius of one-half (1/2) inch.

(m) The surface of sidewalks **and slope paving** shall be divided into blocks with a grooving tool. Spacing of blocks shall conform to the original concrete. Edge grooves with edging tool as necessary to provide uniform edges.

(n) Remove edge marks with a wetted brush so as to give the surface a uniform granular texture which will not be slick when wet.

(o) For curb and gutters, provide contraction joints spaced every 10 feet maximum unless otherwise indicated. Cut contraction joints 3/4-inch deep with a jointing tool after the surface has been finished. Provide expansion joints 1/2-inch thick and spaced every 100 feet maximum unless otherwise indicated. Expansion joints are required at points of curvature and at each side of each drainage inlet box.

(p) Cure with white pigmented liquid membrane, conforming to ASTM C-309 spray uniformly at a rate of one gallon to not more than 150 square feet by mechanical sprayer immediately after finishing operation is completed.

(q) Pavement markings and striping shall be restored immediately upon completion of restoration.

(4) Restoration – Culvert Pipe Installation

(a) Contractor is expected to protect and preserve existing drainage facilities to the maximum extent possible. Where damage is unavoidable, existing deteriorated pipe and structures are to be removed and disposed of and replaced with new materials as specified and detailed in Drawings. Existing pipe may be salvaged and re-installed if in undamaged condition. Existing drainage grates may also be salvaged and reused.

(b) Installation of new drainage culverts shall also be installed under this item at the locations as designated in the Drawings.

(c) No pipe lifting holes will be permitted in any concrete culvert pipe. Contractor must provide and use a suitable bridle or cradle to safely handle the pipe.

(d) Pipe shall be laid accurately, to the line and grade as designated on the Drawings. Preparatory to making pipe joints, all surfaces of the portions of the pipe to be jointed shall be clean and dry. Lubricants, primers, adhesives, etc., shall be used as recommended by the pipe or joint manufacturer's specifications. The jointing materials or factory lubricated joints shall then be placed, fitted, joined and adjusted in such a workmanlike manner as to obtain the degree of watertightness required.

(e) Rigid conduits may be of bell and spigot or tongue and groove design unless one type is specified. The method of joining conduit sections shall be such that the ends are fully entered and the inner surfaces are reasonably flush and even. Joints shall be made with approved rubber gasket joint designs installed in full conformance with the pipe manufacturer's recommendations.

(f) For concrete arch culvert pipe to be laid with joints cemented with bituminous plastic sealer, the following applies: The joining ends shall be wiped clean and dry. The plastic compound shall be applied cold to the entire surface of tongues and grooves, the entire surface of bells and the outer surface of spigots. Sections of concrete shall be forced together, with excess compound extruding both inside and outside the pipe. Excess compound shall be removed from interior surfaces and the exterior finished reasonably flush. Opening between pipe sections shall be uniform for the full circumference and care shall be taken to prevent one section from supporting the other.

(g) All pipe joints shall be wrapped with a strip of approved geotextile fabric, not less than 36 inches in width, centered on the joint and overlapped a minimum of 18 inches just prior to backfilling.

(h) Excavation shall include the loosening, loading, removing, transporting and disposing of all materials, necessary to install culvert pipe, including existing culverts where encountered. Existing culverts and drainage structures removed under this contract shall be transported offsite and disposed of at Contractor's expense. Excavated soils shall be reserved and used as backfill.

(i) Excavation shall be to a width sufficient to allow for the proper joining of the culvert and thorough compaction of the bedding and backfill material under and around the conduit. The completed trench bottom shall be firm for its full length and width.

(j) Bedding shall consist of bedding the conduit to a depth of not less than ten (10) percent of its total height. The bed shall be shaped to fit the conduit and shall have recesses shaped to receive the bell if bell and spigot type pipe is used. Initial backfill shall comply with ASTM D-2321 and the pipe manufacturer's recommendations. Failure to complete and maintain the bedding may render the entire line of conduit unacceptable

(k) Compact backfill under pavement areas to 90 percent Modified Proctor Density. Density tests will be performed in accordance with the requirements for installing water pipe or gravity sewer. Frequency of tests will be as determined by the Engineer or his representative.

(5) Laying Conduit

(a) The conduit laying shall begin at the staked location of the downstream end of the conduit line. The lower segment of the conduit shall be in contact with the shaped bedding throughout its full length. Bell or groove ends of rigid conduits and outside circumferential laps of flexible conduits shall be placed facing upstream.

(b) Conduit shall be joined using joints or couplings manufactured and furnished by the pipe manufacturer, and installed per manufacturer's recommendations for areas having high groundwater levels. A strip of approved geotextile fabric, not less than 36 inches in width, shall be wrapped completely around each pipe joint just prior to backfilling. Minimum overlap on the geotextile fabric shall be 3’ around each joint. The contractor shall take measures as necessary to secure the fabric at the pipe joint so as to ensure the fabric does not come off during backfilling procedures.

(c) Conduit shall be inspected before any backfill is placed. Any conduit found to be out of alignment, unduly settled, or damaged shall be taken up and re-laid or replaced. After the conduit is installed and the joints properly made, the trench or projection of the pipe above the top of the bedding shall be backfilled.

(d) Any pipe damaged through carelessness or negligence on the part of the Contractor shall be replaced by new pipe at no additional cost to the Owner.

(e) The best available native backfill material shall be separated as the trench is excavated and used for the initial pipe backfill and for backfill under street and driveway areas. Other, less suitable material may be used as backfill in other areas. Surplus material shall be disposed of off-site at Contractor's expense.

(f) Installation of underdrain pipe requires the use of clean sand backfill to extend not less than 6" completely around the pipe. If the native material does not

meet this requirement, Contractor shall supply this material without additional compensation.

(6) Polyethylene pipe installed with less than one pipe diameter of compacted earth cover must be artificially restrained from floatation by:

(a) carefully drilling holes into the annular rings and filling these annular spaces with water, and

(b) placing mechanical anchors consisting of ½-inch electrical metallic tubing (EMT) or the equivalent, anchored in concrete as designated by the Engineer or his representative. Place one anchor within one foot of each end of each section of pipe, and at intervals not exceeding ten feet throughout the length of the pipeline.

(7) Restoration - Crushed Limestone or Gravel Driveways – N/A

(a) Place crushed limestone or washed gravel within areas where original limestone or gravel drive surfaces were disturbed (match original material), six (6) inches compacted thickness, spread, shape to drain.

(b) Density of compacted limestone driveways shall be 95% of the maximum dry density as determined by modified Proctor, ASTM 1557. A minimum of one density test per driveway shall be required.

(8) Restoration – Fences – N/A

(a) At locations requiring an existing fence be removed during construction, the Contractor shall carefully remove that portion of the fence and lay aside until installation of the pipeline is completed. Contractor shall then replace the existing fence in as good or better condition than before construction. If salvage of existing fence is unsatisfactory or impractical, contractor shall furnish new materials, matching the original materials in character and original quality.

(b) Finished fences shall be sturdy, straight, and plumb. All fence posts shall be set with concrete.

(c) Contractor shall install temporary fencing in locations required for security or safety measures, or as may be required by property owners, at contractor's expense.

(9) Vegetative Cover – N/A

(a) The Engineer will field designate those areas to receive vegetative cover (grassing). Generally, existing disturbed areas of turf will be designated to receive vegetative cover. However, existing vegetative cover disturbed outside allowable restoration limits as specified in these specifications and in the Drawings shall be restored, but at Contractor's expense.

(b) All earth surfaces which are to receive vegetative cover shall receive ground preparation to a depth of not less than four (4) inches. Thoroughly pulverize the area before the application of vegetative control items. If the soil is not moist it shall be watered until it is in a workable condition. All areas shall be cleared of rough grass, weeds, and debris, and the ground surface brought to an even, uniform grade as approved.

(c) Before the sowing of any seed distribute commercial 13-13-13 fertilizer at the rate of six hundred pounds per acre and disc into the top four inches of prepared soil.

(d) Seed mixture and application rate shall be as follows, depending upon the time of year in which the seeding application is to take place:

March 1 - July 15	Common Hulled Bermuda (30 lbs/acre) Carpet (30 lbs/acre) Centipede (4 lbs/acre)
July 15 - September 1	Common Hulled Bermuda (65 lbs/acre)
September 1 - March 1	Common Unhulled Bermuda (50 lbs/acre) Annual Rye (100 lbs/acre)

Sow seed at uniform rate. Cover lightly by raking, rolling or other approved methods.

(e) Within 24 hours following the seeding, baled straw mulch shall be uniformly distributed over the entire seeded area at the rate of two tons of vegetative mulch material per acre and mulch will be crimped.

(f) The contractor may elect to install the vegetative cover by Hydro-mulching techniques in accordance with the following specifications.

- Hydro-mulching equipment must have a built in agitation system and operating system capable to agitate, suspend , homogeneously mix and apply a slurry of organic mulch, fertilizer, organic tackifier, seed, etc. to stabilize graded and disturbed ditches.
- All earth surfaces which are to receive hydro-mulching shall be cleared of rough grass, weeds, and debris and the ground surface brought to an even, uniform grade as approved. If the soil is not moist it shall be watered until it is in a workable condition.
- Fertilizer shall be commercial 13-13-13 fertilizer or equivalent and added to mixture at rate of two hundred pounds per acre.
- Seed mixture and application rate shall be as follows, depending upon the time of year in which the seeding application is to take place:

March 1 - July 15	Common Hulled Bermuda (30 lbs/acre) Carpet (30 lbs/acre) Centipede (4 lbs/acre)
July 15 - September 1	Common Hulled Bermuda (65 lbs/acre)
September 1 - March 1	Common Unhulled Bermuda (50 lbs/acre) Annual Rye (100 lbs/acre)

(g) The Contractor shall maintain the planted areas until the work has been completed, and a satisfactory stand and growth of in season plantings have sufficiently covered the area, and have been accepted. Maintenance shall consist of preserving, protecting, watering, weeding, mowing, repairing,

replacing, and such other work as may be necessary to keep the planted areas in a satisfactory condition.

(h) If deemed necessary by the Engineer, Contractor may be required to mow areas of overgrown grass prior to final acceptance, or may be required to reseed areas and establish a satisfactory stand of in season plantings prior to final acceptance.

(10) Solid Sod – **N/A**

(a) The Engineer will field designate those areas to receive solid sod. Generally, only existing areas of highly developed lawn turf will be designated to receive sod.

(b) All earth surfaces which are to receive solid sod shall receive ground preparation to a depth of not less than four (4) inches. Thoroughly pulverize the area before the application of vegetative control items. If the soil is not moist it shall be watered until it is in a workable condition. All areas shall be cleared of rough grass, weeds, and debris, and the ground surface brought to an even, uniform grade as approved.

(c) Before the placing of sod distribute commercial 13-13-13 fertilizer at the rate of two hundred pounds per acre and disc into the top four inches of prepared soil.

(d) The areas will then be brought to proper grade, free of sticks, stones, roots, or other foreign matter. The surface will conform to finish grade, less the thickness of sod, free of water retaining depressions, and the soil will be friable and of uniformly firm texture.

(e) Place a continuous mat of live sod upon all areas disturbed by construction. Contractor has option of cutting existing grass now on the site and preserving it for reinstallation, or he may destroy the existing grass and provide new sod which satisfactorily matches the original turf.

(f) Place the sod edge in a neat, clean manner to the edge of all paving and shrub areas. Top dressing with approved, clean and weed free sand may be required at no additional cost to the Owner.

(g) Areas on which sod is to be placed will contain sufficient moisture to prevent drying out. Contractor will keep sod moist to the full depth of the rooting zone for a minimum of two weeks after installation and as further required to maintain a living and growing stand of sod. Contractor shall be responsible for providing water required for irrigation.

(h) The Contractor shall maintain the sodded areas until the work has been completed and accepted. Maintenance shall consist of preserving, protecting, watering, weeding, mowing, repairing, replacing, and such other work as may be necessary to keep the planted areas in a satisfactory condition.

(i) Lawn areas outside the designated restoration limits damaged by Contractor's operations will be repaired at once by proper sod bed preparation, fertilizing and re-sodding, in accordance with these specifications.

(11) Rip-Rap – N/A

(a) The rip-rap shall be placed in those areas shown on the plans or as designated by the Engineer.

(b) The earth surface shall be carefully prepared by excavating to 12 inches below final finish grade, removing debris which may damage filter fabric, and smoothing the subgrade.

(c) Filter fabric shall be installed in accordance with manufacturer's recommendations, using 12 inch minimum toe-in at the top edge of the fabric and a toe-wrap at the bottom edge.

(d) Hand place rip-rap upon the filter fabric, orienting the individual pieces to achieve an inter-locking effect. The nominal thickness of the stone blanket shall be not less than 12 inches.

(12) Excelsior Blanket – N/A

(a) The blanket shall not be exposed to moisture prior to placing.

(b) The areas to be covered shall be prepared, fertilized and vegetated as specified herein for vegetative cover before the blankets are placed. Immediately following the planting operations, the blankets shall be laid evenly, smoothly and in contact with the soil throughout and with the fabric net on top of the blankets.

(c) For waterways, the blankets shall be unrolled in the direction of water flow. When two (2) or more strips are required to cover a ditch area, they shall overlap four (4) inches minimum. In case a strip is to be spliced lengthwise, the ends of the strips shall overlap six (6) inches minimum with the upgrade section on top.

(d) When used on slopes, the blankets may be placed either horizontally or vertically to the slope with the edges and ends of adjacent strips butted tightly against each other.

(e) Each strip shall be stapled in three (3) rows (each edge and center row alternately spaced) with staples spaced not more than four (4) feet longitudinally. When using two (2) or more strips side by side on slopes, use a common row of staples on the adjoining strips securing the outside netting strand of each strip. All end strips shall be stapled at one (1) foot intervals at the end. Staples shall be firmly embedded in the underlying soil.

(13) Miscellaneous – N/A

(a) Contractor shall provide grading, shaping, compaction and dressing as required for the project.

(b) Contractor shall construct drainage swales and shape to drain.

(D) METHOD OF MEASUREMENT

(1) Granular sandy clay base shall be measured as the number of square yards of minimum specified thickness, of completed work, that has been verified by testing that the required density has been achieved, field measure. Removal of any existing base material needed to install the full 8” thickness in the parking lot area to be resurfaced shall be absorbed into the unit cost for the installation and testing of the new base material.

(2) Hot Bituminous Base Course shall be measured as the number of square yards of base course placed at the minimum specified density and thickness, of completed work, that has been verified by testing to meet MDOT standards, field measure. Asphalt that fails to achieve the desired density of the asphalt (i.e., 92%) or densities in excess of the maximum (i.e., 96%) may be removed and replaced at the contractors' expense or shall be subject to the pay factor established in Section 401 of the most recent MDOT standards.

(3) Hot Bituminous Surface Course shall be measured as the number of square yards of asphalt pavement removed and replaced with a surface course of the minimum specified density and thickness, of completed work, that has been verified by testing to meet MDOT standards, field measure. Asphalt that fails to achieve the desired density of the asphalt (i.e., 92%) or densities in excess of the maximum (i.e., 96%) may be removed and replaced at the contractors' expense or shall be subject to the pay factor established in Section 401 of the most recent MDOT standards. This shall include removal of existing asphalt pavement of all depths.

(4) Costs for removing and disposal of any of the remaining asphalt (all depths) on the roads designated to be overlaid shall be absorbed into the price for installation of the new asphalt surface or shall be included in the cost of demolition.

(5) No separate payment will be made for the removal and disposal of sand-clay base material or asphalt pavement outside the allowable project area width unless authorized by the Engineer.

(6) No measure or payment will be made for materials used for tack coats.

(7) No measure or payment will be made for pavement markings or striping. Specifications for pavement markings are included in Specification Section 8.

(8) Concrete restoration of all types, including driveways, aprons, parking islands, etc. shall be measured as the number of square yards of completed work, field measure, (See Specification Section 3).

(9) No measure or payment will be made for saw cut joints.

(10) No measure or payment will be made for temporary fencing required for security or safety measures, or as may be required by property owners.

(11) Culvert restoration and installation of Culvert pipe shall be measured as the number of linear feet of pipe of the various material types (RCP, HDPE, etc.) and sizes actually installed, field measure, including any necessary coupling bands and adapters. Culvert pipe shall be paid for at the contract unit price provided with the bid.

(12) Vegetative cover shall be measured as the number of acres of work authorized and completed, field measure.

(13) Geotextile fabric will not be measured for separate payment but shall be included in the unit price to which it is subsidiary.

(14) Restoration of Concrete Curb & Gutter, of all types, shall be measured as the number of linear feet of completed work for curb/curb and gutter removed and replaced, field measure.

(E) PAYMENT

(1) Payment will be made under PAY ITEM NO.

7-A GRANULAR SANDY CLAY (CLASS 9, GROUP C), 8” THICKNESS

($_____) per square yard

7-B 2” BINDER COURSE

($_____) per square yard

7-C 2" SURFACE COURSE

($_____) per square yard

7-D CONCRETE CURB RESTORATION (ALL TYPES)
($_____) per linear feet

7-E 48” HDPE DOUBLE-WALLED DRAINAGE PIPE

($_____) per linear feet

ITEM NO. 8

TRAFFIC MARKINGS

(A) SCOPE OF WORK

This work shall consist of furnishing materials and applying reflectorized paint pavement markings in close conformity with these specifications and the details shown on the plans.

(1) This work shall consist of all labor, materials, and equipment to provide traffic striping markings upon the completed asphalt surface to control traffic circulation.

(2) Asphalt pavement shall be allowed to cure for a minimum of 4 weeks prior to application of painted pavement markings.

(3) This work shall consist of furnishing materials and applying reflectorized paint traffic striping in reasonably close conformity with these specifications and the details shown on the plans. This work shall fully conform to Section 625, “Painted Traffic Markings”, and related sections of the MDOT Standard Specifications for Road and Bridge Construction, latest edition.

(A) MATERIALS

(1) Paint shall conform with MDOT Standard Specifications for Road and Bridge Construction, Latest Edition, Specification 710.02.2 for Fast Drying Acrylic Waterborne Paint, Code FDWBTW (white paint).

(2) Glass Beads shall conform with MDOT Standard Specifications for Road and Bridge Construction, Latest Edition, Subsection 720.01 for Class B- High Visibility beads.

(3) Blue – ADA marking material shall meet the requirements of Section 710 with the exception that the color shall be Blue – ADA.

(B) CONSTRUCTION REQUIREMENTS

(1) Preparation and installation of traffic markings shall conform to the applicable sub-sections of Sections 625 and 626 of the above-referenced specifications.

(2) Rate of application of painted traffic markings shall be not less than one (1) gallon of paint and twelve (12) pounds of reflectorized glass beads for each 176 linear feet of 4-inch wide line applied.

(3) Painted traffic markings applied at less than the minimum material rates or any other deficiencies or irregularities shall be removed and replaced. Removal methods shall be in accordance with Subsection 619.03.2 of the 2004 Edition, of the MDOT Standard Specifications for Road and Bridge Construction.

(4) Thermoplastic traffic marking less than the required thickness shall be corrected by overlaying with an additional application of thermoplastic material. Any such overlay shall be no less than 30 mils thick.

(5) Layout of the work shall generally conform with the Layout Drawing. Detailed layout is the responsibility of the Contractor, subject to approval of the Engineer.

(C) METHOD OF MEASUREMENT

(1) Painted Traffic Markings/Traffic Striping (white), 6” in width, intended to be used as a painted island shall not be measured for separate payment but shall be included in the unit price to which it is subsidiary.

(2) Painted Traffic Markings/Traffic Striping/Legend (blue), 6” in width, intended to be used for handicapped parking place marking(s), including the handicapped symbols, shall not be measured for separate payment but shall be included in the unit price to which it is subsidiary.