AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE	OF	PAGES
	1		29

2. AMENDMENT/MODIFICAITON NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. (If applicble)
AMENDMENT NO. 0003	9/20/12		12-0066

6. ISSUED BY	CODE	7. ADMINISTERED BY (If other than Item 6)	CODE
Officer in Charge of Construction MCI-East 1005 Michael Road Camp Lejeune, NC 28547-2521	mks	See Item 6	

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)	(X)	9A. AMENDMENT OF SOLICIATION NO.
	x	N40085-12-R-0066
		9B. DATED (SEE ITEM 11) 9/7/12
		10A. MODIFICATION OF CONTRACT/ORDER NO.
		10B. DATED (SEE ITEM 11)
CODE / FACILITY CODE		

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

[x] The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers [ ] is extended, [x] is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a)By completing items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment your desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPIRATION DATA (If required)

13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

CHECK ONE	
	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor [x] is not, [ ] is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

12-0066, Repair the MCAS New River Police Station, Bldg AS302

~CONTINUED~

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)	
15B. CONTRACTOR/OFFEROR (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA (Signature of Contracting Officer)	16C. DATE SIGNED

CONTINUATION SHEET

1. The following drawings have been **REVISED** and shall **REPLACE** original drawings with like numbers: **60011811, 60011812, 60011813, & 60011826**. These drawings are hereby incorporated into the RFP (Request for Proposals) dated 7 September 2012.

Specification section **01 59 00** & Specification section **33 11 00** are hereby incorporated into the RFP (Request for Proposals) dated 7 September 2012.

2. The contractor shall provide/install 1-4" conduit with pull strings from Telecommunications room 133 to the Server room 123. The 4" conduit shall be installed in the crawl space area. The contractor shall coordinate with the Contracting Officer to determine the exact locations for floor penetrations of the 4" conduit at rooms 133 and 123.

3. Question: I would like a further clarification for the standing seam metal roof system for this project. In section 07 41 13 page 15 paragraph 2.3.2.3 it states in the last sentence " The clips must be one piece clips and allow for unlimited thermal movement." The working of "one piece clip" restricts the system to a Garland manufactured system.

In March of 2012 when project 12-B-0065 Repair BEQ M-430 was bid, the specification was amended by amendment # 5 to read "The clips must allow unlimited thermal movement." This change of the wording opened it up to various other manufacturers. A different system than the Garland System has been approved for the M-430 project.

3. Answer: The intent is for the roof specifications for AS-302 to be met as written for this contract, independent of actions on any previous contract. There are no existing patents on any of the components specified for the AS-302 roofing system. The system is and can be manufactured by several different companies. The Merchant and Evans "Zip-Rib" roofing system does not meet the specifications of this project. It is unknown if that company manufactures a system which does meet the specifications. The roofing system specified for AS-302 is necessary and desired for a variety of reasons. The specification therefore must be strictly adhered to.

It shall be noted that the "one piece clip" used in the Garland roof system, mentioned in the RFI, is not manufactured by Garland. The assertion in the RFI that the "one piece clip" restricts the system to a Garland manufactured roofing system is not accurate.

4. Question: Drawing E-102 shows the Type C fixtures in to different applications. Per the schedule it would appear the type C fixture is a 2X4 lay-in fixture. There appear to be two mechanical rooms and the attic that also show a type C fixture that appears to be a strip type fixture. Please provide direction.

4. Answer: The light fixtures shown in the mechanical rooms and in the attic are incorrect. The mechanical and attic light shall be similar to the J fixture (NL-14)and shall be an 8' fixture with 2-T5 Lamps.

5. Question: On drawing FP-101 Of the contract drawings note # 2 calls for a new 6" water supply for the sprinkler system. There is nothing shown on any other drawing on where this water line connects or any devices such as a post indicator valve or fire department connections.

5. Answer: See revised C-101 sheet for addition information on new water supply line for sprinkler system and associated items.

6. Question: Can we get any more information on the wall/siding requirements for the hardened temp trailer? It appears the walls are to be constructed the same as the other temp trailers.

6. Answer: Trailers 1-4, armory, and hazmat shelter have been **DELETED** in their entirety from this contract. See revised plans (attached) and specifications that addressed the deleted items.

7. Question: On drawing E-103 plan note 4,6, shows a 24 strand single mode and a 100 pair PE 39 cable is to run from AS302 to trailer 5. Is 24 strand sm correct and if so what is the total footage from AS302 to trailer 5?

7. Answer: Per information in RFI#3 trailers 1-4, armory, and hazmat shelter have been deleted from the contract entirely. Since only 2-trailers remain the contractor shall provide/install 12 strand single mode fiber, 25 pair copper, and 1-3cell fabric innerduct.

8. Question: On E-103 note 5, shows that trailers 2,3,4,6 are to have a 24 strand sm fiber with a 10 pair going to each one of the trailers. If that is the case, where do we need to construct IDF's in those trailers.

8. Answer: Note 5 on sheet E-103 shall be replaced with the following: "Provide/install a separate 4" PVC conduit, with cables, 24" underground from telecomm trailer to other trailer (meet requirements in specification section 01 59 00)."

9. Question: Trailer 1 shows that it's a combination head/training facility. It shows 4 locations in the training room but unlike the other trailers, this does not have a plan showing where it is to bed fed from or if it also gets 24 strand fiber and a 10 pair. Could you clarify this?

9. Answer: **DELETE** trailers 1-4 in original plans. Trailers 5 and 6 remain (revised drawing displays the 2 remaining trailers as trailers 1 and 2).

10. Question: How far is the conduit running from trailer 5 to trailers 2,3,4, and 6? If these trailers get fiber and copper, we will need to know where it is to be located and terminated for each.

10. Answer: Conduit/cable lengths shall be obtained from the plans.

11. Question: Is the mobile armory going to have any data/tele locations? On E-103 it stated in note 8 that a 2 inch conduit to be ran from the cabinet in trailer 5 to the armory. Is this to remain empty for future use or do we need to install cabling?

11. Answer: The Armory is **DELETED** from the contract.

12. Question: In trailer 5 it appears to call for a lockable cabinet. If all pulls are to run back to this trailer, will be there be enough room to install everything in 1 cabinet? I've calculated 196 total cat 5e cables which will require 5, 48 port patch panels. If each trailer will have its own cabinet/rack, this will change.

12. Answer: 1 cabinet will suffice for the 2 trailers.

13. Specification 01 59 00 states "For all trailers provide two telecomm outlets in each of the corner offices, within 6" of the electrical outlets. Also provide a telecomm outlet within 6" of each electrical outlet in the open office areas, classrooms, conference rooms, or training rooms." The contractor shall only provide telecommunication outlets per the plans (8 outlets per trailer). The contractor is responsible for all aspects of the telecommunication system all shall provide a fully functioning system upon installation completion. Once the system has been completely installed, the contractor shall coordinate with the Contracting Officer and Base Telephone so that Base Telephone can inspect and certify the system.

Revised sheet E-103 shows the deletion of the trailers and all of the associated electrical / telecommunication utilities.

SECTION 01 59 00

TEMPORARY TRAILERS FOR DISPLACED TENANTS

04/94

PART 1 GENERAL

1.1 SUBMITTALS

Submit the following.

SD-02 Shop Drawings

a. Foundation/Pier Plan
b. Underpinning
c. Floor Plans
d. Mechanical Systems
e. Plumbing Schematics
f. Electrical Distribution
g. Lighting Plans

SD-03 Product Data

a. Trailer Manufacturer's Literature

1.2 SCHEDULING THE WORK

The Contractor shall provide and install office trailer(s) as specified on the project plans and as indicated herein complete and ready for occupancy 15 days prior to starting any work within Building AS-302.

1.2.1 Upon Request or After Completion

Upon request by the Contracting Officer or after completion of all work, the Contractor shall have three weeks to remove the trailer(s), including all utility services, steps, foundations, and other associated materials. The grounds shall be restored to the original condition. Repair to original condition any damage to grassed or paved areas caused by mobile building or by anchoring.

PART 2 PRODUCTS

2.1 TRAILER

Trailer shall be provided as presented on the project plans. The trailers shall be provided, set up and made ready for occupancy including all utility connections. Provide domestic water, domestic sewer, electrical systems, and communication system as specified on the project plans complete and ready for use.

2.1.1 Office Trailers

Provide single story office trailers of the minimum sizes indicated on the project plans. Each trailer shall have floor plans consistent with those

presented on the project plans.

Exterior of trailers shall be gray, unless otherwise specified by the contracting officer. Offices shall be 8 feet by 10 feet unless otherwise noted or approved.

2.2 Construction Requirements

Each trailer shall be structurally sound, weathertight enclosure suitable for commercial use, conforming to the following minimum requirements.

2.2.1 Office Trailers

a. nominal 2 x 4 wall construction

b. nominal 2 x 6 floor joists with 5/8-inch plywood decking

c. R-11 insulation in floor and walls

d. R-14 insulation in ceiling

e. Two entry doors with locks and three keys per lock.

f. Windows with operable sash, except where otherwise noted.

g. Interior materials shall be sheet type materials, pre-finished or painted. Floor coverings shall be vinyl composition tile. Exterior material shall be weather resistant.

h. Provide consistent color scheme on interior and exterior as approved by the Contracting Officer.

i. Steps and Landing: Durable nonslip materials such as checkered plate metal, treated wood or concrete stairs and landing. Landing at trailer level of size adequate for person to stand on landing and open the door. Railing on both sides of steps and two sides of landing. Provide handicap accessible pathway to be designed by the Contracting Officer, including sidewalks and ramps

j. Skirting: Skirting shall be vinyl. Skirting shall be installed after all utility and telecommunications work is complete and once all inspections have been completed and approved.

k. Foundation and Underpinning: Provide masonry foundation and underpinning to comply with the manufacturer's requirements and to provide vertical and lateral stability for the soil conditions present and for the basic wind velocity applicable to the site as specified in the applicable codes. The foundation and underpinning systems shall be designed by a North Carolina Licensed Professional Engineer. Minimum foundation requirements are shown on the project plans.

l. All trailers shall conform to all life safety code requirements including travel distances, dead end limits, etc.

m. Windows shall be operable and with mini-blinds.

n. All exterior doors shall open outward and all interior doors shall open into the offices.

o. Trailers and stairs are required to be secured to ensure that they are capable of withstanding three second gust of 130 mph.

p. All materials, supplies, and labor to accomplish work shall be provided by the contractor.

q. Fire extinguisher - Provide appropriate type and wall mount on interior adjacent to each exterior door.

2.2.1.1 Mechanical and Electrical Minimum Requirements for Office Trailers

a. Central HVAC as required to maintain interior conditions between 72 - 78 degrees F DB and 40 - 60% RH. With exterior conditions between 23 degrees F DB (winter) and 90 degrees F DB and 79 degrees F WB (summer). Outside air shall be introduced at the rate of 0.125 CMB/SF of conditioned space.

b. 200 amp - 20 circuit panel

c. 120 volt lighting, ceiling mounted

d. 120 volt duplex wall receptacles spaced 6 feet o.c. on interior walls.

e. Exterior light at entrance doors

2.2.1.2 Communication System Requirements for Office Trailers

a. A centrally located office trailer shall be equipped with a telecommunications cabinet to serve as the communications distribution point (submit the telecomm cabinet to base telephone for approval). The telecom cabinet shall be lockable and shall have two (2) dedicated 20 amp power outlets. The central communications distribution point is as indicated on the plans.

Contractor shall install telecommunications cabling in accordance with specification sections 27 10 00 BUILDING COMMUNICATIONS CABLING SYSTEM and 33 82 00 TELECOMMUNICATIONS OUTSIDE PLANT (OSP).

For all trailers provide two telecomm outlets in each of the corner offices, within 6" of the electrical outlets. Also provide a telecomm outlet within 6" of each electrical outlet in the open office areas, classrooms, conference rooms, or training rooms. Ensure that requirements outlined in 27 10 00 BUILDING COMMUNICATIONS CABLING SYSTEM and 33 82 00 TELECOMMUNICATIONS OUTSIDE PLANT (OSP) are met. Telecomm outlets shall be standard double gang box with single gang reducer and 1 inch conduits stubbed down below floor of trailer for each faceplate. Four RJ-45 jacks per faceplate with 4 cat 5e cables going back to a patch panel in lockable Cabinet large enough for all equipment. Provide CAT 32 J hooks under and around the perimeter of trailer fastened to the trailer frame no more than 4 feet apart for cable path. Leave skirting off until after all cables are run.

b. The contractor shall provide and coordinate with Base Telephone to accomplish the routing of the telecomm cabling to the dedicated telecomm trailer from the existing communication room in AS-302.

The contractor shall adhere to 33 82 00 TELECOMMUNICATIONS OUTSIDE PLANT (OSP) specifications for the proper installation of the conduit to the telecomm trailer. Conduit shall terminate underneath the dedicated telecomm trailer (near telecomm cabinet location). Base telephone shall make the final connection of the cabling to the existing communications system in the existing communications room at AS-302. Otherwise, the Contrator is responsible for all other system components. The contractor is responsible for all telecommunication pathway and infrastructure. The contractor shall provide the lockable cabinet. The contractor is to ensure that the temporary trailers have a complete and usable telecomm system upon completion. Once construction has been completed, the contractor shall remove all conduit and cabling.

Provide a separate 4" PVC conduit underground from telecomm trailer to other trailers for telecommunications cabling installation/pathway. Conduits shall be installed after trailers have been placed and set up. Conduits shall use long sweeps at all changes of direction. Inside radius of conduit shall be at least 24". Conduit shall have no more than 180 degrees of directional change in any single sweep unless a waterproof pull box is installed after every 180 degrees of total change in direction. Pull boxes shall a 2'x2'x4' minimum dimension. Conduit runs shall not exceed 75' in length without a waterproof pull box. Conduit shall be installed with pull wire accessible from both ends and both ends shall be capped.

2.2.1.3 Water, Sewer, and Electrical Connections

Provide domestic water, domestic sewer, electrical systems, and communication systems as specified on the project plans complete and ready for use.

PART 3 EXECUTION

3.1 PREPARATION

3.1.1 Foundation

Provide foundation for trailer(s); conform to applicable codes.

3.2 INSTALLATION

Install trailer(s); provide full skirting and anchoring for 130 mph wind zone; conform to applicable codes. Connect indicated utilities.

3.2.1 Steps and Landing

Provide steps and landing for each mobile building as indicated on the project plans. Provide one handicap accessible ramp for one trailer as designated by the Contracting Officer.

3.2.2 Plumbing, Electrical and Communications Hook-Up

Provide complete plumbing, electrical and communications hookup to mobile buildings. Supply all necessary parts and connections and conform to all applicable codes.

3.2.3 Damages

Government will not be responsible for damage to trailers from installation of phones, moving furniture, minor modification and normal wear and tear.

-- End of Section --

SECTION 33 11 00

WATER DISTRIBUTION
04/06

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI B18.5.2.1M	(1981; R 1995) Metric Round Head Short Square Neck Bolts

AMERICAN WATER WORKS ASSOCIATION(AWWA)

AWWA B300	(2004) Hypochlorites
AWWA B301	(2004) Liquid Chlorine
AWWA C104	(1995) Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water
AWWA C105	(2005) Polyethylene Encasement for Ductile-Iron Pipe Systems
AWWA C110	(2003) Ductile-Iron and Gray-Iron Fittings, 3 In. Through 48 In. (76 mm through 1219 mm), for Water
AWWA C111	(2000) Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
AWWA C115	(1999) Flanged Ductile-Iron Pipe With Ductile-Iron or Gray-Iron Threaded Flanges
AWWA C151	(2002) Ductile-Iron Pipe, Centrifugally Cast, for Water
AWWA C153	(2000) Ductile-Iron Compact Fittings for Water Service
AWWA C500	(2002; A C500a-95) Metal-Seated Gate Valves for Water Supply Service
AWWA C503	(2005) Wet-Barrel Fire Hydrants
AWWA C509	(2001) Resilient-Seated Gate Valves for Water Supply Service
AWWA C600	(2005) Installation of Ductile-Iron Water Mains and Their Appurtenances
AWWA C651	(2005; Errata 2005) Standard for

	Disinfecting Water Mains
AWWA C800	(2005) Underground Service Line Valves and Fittings
AWWA M11	(2004) Manual: Steel Pipe: A Guide for Design and Installation
AWWA M23	(2002) Manual: PVC Pipe - Design and Installation

ASME INTERNATIONAL (ASME)

ASME B16.1	(1998) Cast Iron Pipe Flanges and Flanged Fittings Classes 25, 125, and 250
ASME B16.26	(1988) Cast Copper Alloy Fittings for Flared Copper Tubes
ASME B18.2.2	(1987; R 2005) Square and Hex Nuts
ASME B18.5.2.2M	(1982; R 2000) Metric Round Head Square Neck Bolts

ASTM INTERNATIONAL (ASTM)

ASTM A 307	(2004) Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength
ASTM A 47/A 47M	(1999; R 2004) Standard Specification for Steel Sheet, Aluminum-Coated, by the Hot-Dip Process
ASTM A 48/A 48M	(2003) Gray Iron Castings
ASTM A 536	(1984e1; R 2004) Standard Specification for Ductile Iron Castings
ASTM A 563	(2004a) Carbon and Alloy Steel Nuts
ASTM B 61	(2002) Steam or Valve Bronze Castings
ASTM B 62	(2002) Composition Bronze or Ounce Metal Castings
ASTM C 94/C 94M	(2009) Standard Specification for Ready-Mixed Concrete
ASTM D 1785	(2005) Poly(Vinyl Chloride)(PVC) Plastic Pipe, Schedules 40, 80, and 120
ASTM D 2000	(2005) Rubber Products in Automotive Applications
ASTM D 2241	(2005) Poly(Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series)
ASTM D 2464	(1999e1) Threaded Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80

ASTM D 2466	(2005) Poly(Vinyl Chloride)(PVC) Plastic Pipe Fittings, Schedule 40
ASTM D 2467	(2005) Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80
ASTM D 2564	(2004) Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems
ASTM D 2774	(2004) Underground Installation of Thermoplastic Pressure Piping
ASTM D 2855	(1996; R 2002) Making Solvent-Cemented Joints with Poly(Vinyl Chloride) (PVC) Pipe and Fittings
ASTM F 402	(1993; R 1999) Safe Handling of Solvent Cements, Primers, and Cleaners Used for Joining Thermoplastic Pipe and Fittings

MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS INDUSTRY (MSS)

MSS SP-80	(2003) Bronze Gate, Globe, Angle and Check Valves

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 24	(2002) Installation of Private Fire Service Mains and Their Appurtenances
NFPA 325-1	(1994) Fire Hazard Properties of Flammable Liquids, Gases, and Volatile Solids
NFPA 49	(3003) Hazardous Chemicals Data
NFPA 704	(2001) Identification of the Hazards of Materials for Emergency Response

UNDERWRITERS LABORATORIES (UL)

UL 246	(1993; Rev thru Dec 1998) Hydrants for Fire-Protection Service
UL 262	(2004) Standard for Gate Valves for Fire-Protection Service
UL 789	(2004) Indicator Posts for Fire-Protection Service

UNI-BELL PVC PIPE ASSOCIATION (UBPPA)

UBPPA UNI-B-3	(1992) Recommended Practice for the Installation of Polyvinyl Chloride (PVC) Pressure Pipe (Nominal Diameters 4-36 Inch)
UBPPA UNI-B-8	(2000) Recommended Practice for the Direct Tapping of Polyvinyl Chloride (PVC)

Pressure Water Pipe (Nominal Diameters 6-12 Inch)

1.2 DESIGN REQUIREMENTS

1.2.1 Water Distribution Mains

Provide water distribution mains indicated as 4 through 12 inch diameter pipe sizes of ductile-iron pipe. Provide ductile iron pipe for 12 inch diameter or larger pipe sizes. Also provide water main accessories, gate valves as specified and where indicated.

1.2.2 Water Service Lines

Provide water service lines indicated as less than 4 inch lines from water distribution main to building service at the points indicated. Water service lines shall be polyvinyl chloride (PVC) plastic pipe. Provide water service line appurtenances as specified and where indicated.

1.3 SUBMITTALS

The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

Piping Materials

Water distribution main piping, fittings, joints, valves, and coupling

Water service line piping, fittings, joints, valves, and coupling

Hydrants

Indicator posts

Corporation stops

Valve boxesSubmit manufacturer's standard drawings or catalog cuts. Include information concerning gaskets with submittal for joints and couplings.

SD-06 Test Reports

Bacteriological Disinfection

Test results from commercial laboratory verifying disinfection

SD-07 Certificates

Water distribution main piping, fittings, joints, valves, and coupling

Water service line piping, fittings, joints, valves, and coupling

Shop-applied lining and coating

Lining

Fire hydrants

SD-08 Manufacturer's Instructions

Installation procedures for water piping

1.4 DELIVERY, STORAGE, AND HANDLING

1.4.1 Delivery and Storage

Inspect materials delivered to site for damage. Unload and store with minimum handling. Store materials on site in enclosures or under protective covering. Store plastic piping, jointing materials and rubber gaskets under cover out of direct sunlight. Do not store materials directly on the ground. Keep inside of pipes, fittings, and valvesfree of dirt and debris.

1.4.2 Handling

Handle pipe, fittings, valves, hydrants, and other accessories in a manner to ensure delivery to the trench in sound undamaged condition. Take special care to avoid injury to coatings and linings on pipe and fittings; make repairs if coatings or linings are damaged. Do not place any other material or pipe inside a pipe or fitting after the coating has been applied. Carry, do not drag pipe to the trench. Use of pinch bars and tongs for aligning or turning pipe will be permitted only on the bare ends of the pipe. The interior of pipe and accessories shall be thoroughly cleaned of foreign matter before being lowered into the trench and shall be kept clean during laying operations by plugging or other approved method. Before installation, the pipe shall be inspected for defects. Material found to be defective before or after laying shall be replaced with sound material without additional expense to the Government. Store rubber gaskets that are not to be installed immediately, under cover out of direct sunlight.

1.4.2.1 Miscellaneous Plastic Pipe and Fittings

Handle Polyvinyl Chloride (PVC), pipe and fittings in accordance with the manufacturer's recommendations. Store plastic piping and jointing materials that are not to be installed immediately under cover out of direct sunlight.

Storage facilities shall be classified and marked in accordance with NFPA 704, with classification as indicated in NFPA 49 and NFPA 325-1.

PART 2 PRODUCTS

2.1 WATER DISTRIBUTION MAIN MATERIALS

2.1.1 Piping Materials

2.1.1.1 Ductile-Iron Piping

a. Pipe and Fittings: Pipe, AWWA C151, Pressure Class 350. Flanged pipe, AWWA C115. Fittings, AWWA C110 or AWWA C153. Fittings shall have pressure rating at least equivalent to that of the pipe. Ends of pipe and fittings shall be suitable for the specified joints. Pipe and fittings shall have cement-mortar

lining, AWWA C104, standard thickness.

b. Joints and Jointing Material:

(1) Joints: Joints for pipe and fittings shall be push-on joints or mechanical joints unless otherwise indicated. Provide mechanical joints where indicated. Provide flanged joints where indicated. Provide mechanically coupled type joints using a sleeve-type mechanical coupling . Joints made with sleeve-type mechanical coupling may be used in lieu of push-on joint, subject to the limitations specified in paragraph entitled "Sleeve-Type Mechanical Couplings."

(2) Push-On Joints: Shape of pipe ends and fitting ends, gaskets, and lubricant for joint assembly, AWWA C111.

(2) Mechanical Joints: Dimensional and material requirements for pipe ends, glands, bolts and nuts, and gaskets, AWWA C111.

(3) Flanged Joints: Bolts, nuts, and gaskets for flanged connections as recommended in the Appendix to AWWA C115. Flange for setscrewed flanges shall be of ductile iron, ASTM A 536, Grade 65-45-12, and conform to the applicable requirements of ASME B16.1, Class 250. Setscrews for setscrewed flanges shall be 190,000 psi tensile strength, heat treated and zinc-coated steel. Gasket and lubricants for setscrewed flanges, in accordance with applicable requirements for mechanical-joint gaskets specified in AWWA C111. Design of setscrewed gasket shall provide for confinement and compression of gasket when joint to adjoining flange is made.

(6) Sleeve-Type Mechanical Coupled Joints: As specified in paragraph entitled "Sleeve-Type Mechanical Couplings."

2.1.2 Valves, Hydrants, and Other Water Main Accessories

2.1.2.1 Gate Valves on Buried Piping

AWWA C500, AWWA C509, or UL 262. Unless otherwise specified, valves conforming to: (1) AWWA C500 shall be nonrising stem type with double-disc gates and mechanical-joint ends or push-on joint ends as appropriate for the adjoining pipe, (2) AWWA C509 shall be nonrising stem type with mechanical-joint ends, and (3) UL 262 shall be inside-screw type with operating nut, double-disc or split-wedge type gate, designed for a hydraulic working pressure of 350 psi, and shall have mechanical-joint ends or push-on joint ends as appropriate for the pipe to which it is joined. Materials for UL 262 valves shall conform to the reference standards specified in AWWA C500. Valves shall open by counterclockwise rotation of the valve stem. Stuffing boxes shall have 0-ring stem seals. Stuffing boxes shall be bolted and constructed so as to permit easy removal of parts for repair. Where a post indicator is shown, the valve shall have an indicator post flange; indicator post flange for AWWA C500 valve shall conform to the applicable requirements of UL 262.

2.1.2.2 Reduced Pressure Double Check Valve Assembly

The reduced pressure backflow preventer shall consist of two independently operating, spring loaded cam-check valves with a hydraulically operated differential pressure relief valve located between and below the cam-checks, required test cocks and inlet and outlet resilient seat shut

off valves. When normal flow exists, both check valves are open and the pressure in the area between the checks, called the zone, is a least 2 psi lower then the inlet pressure. The differential pressure relief valve is closed during normal flow.

If cessation of normal flow occurs, the differential pressure relief valve will automatically open and discharge to maintain the zone at least 2 psi lower than the inlet pressure. This action will prevent a backflow or backsiphonage condition. After the required differential is established, the differential pressure relief valve again closes.

The cam-checks include a stainless steel spring and cam-arm, rubber faced disc and a replaceable seat. The body shall be manufactured from 300 series stainless steel, lead free, with a single two-bolt grooved style access cover. No special tools shall be required for servicing. The relief valve shall be compact with a rolling diaphragm and no sliding seals. The relief valve shall discharge in a 360 degree radius.

The assembly shall have a rated working pressure of 175 psi and a rated hydrostatic pressure of 350 psi.

The assembly shall meet the American Society of Sanitary Engineering (ASSE) Standard and carry the ASSE seal or appear on the University of California approval list.

2.1.2.3 Fire Hydrants

Wet-barrel type shall be provided where indicated. Paint hydrants with at least one coat of primer and two coats of yellow enamel paint, except use red enamel paint for tops of hydrants in non-potable water systems. Stencil hydrant number and main size on the hydrant barrel using black stencil paint.

a. Wet-Barrel Type: Wet-barrel type hydrants, AWWA C503 or UL 246, "Wet Barrel" design, shall have 6 inch inlet, one 4 1/2 inch pumper connection, and two 2 1/2 inch hose connections. Inlet shall have mechanical-joint end only, except where flanged end is indicated; end shall conform to the applicable requirements as specified for the joint. Size and shape of operating nut, cap nuts, and threads on hose and pumper connections shall be as specified in AWWA C503 or UL 246.

2.1.2.4 Indicator Posts

The indicator post shall comply with the requirements of UL 789. Provide for gate valves where indicated. Provide lockable type post indicator valve.

2.1.2.5 Valve Boxes

Provide a valve box for each gate valve on buried piping, except where indicator post is shown. Valve boxes shall be of cast iron or precast concrete of a size suitable for the valve on which it is to be used and shall be adjustable. Cast-iron boxes shall have a minimum cover and wall thickness of 3/16 inch. Provide a round head. Cast the word "WATER" on the lid. The least diameter of the shaft of the box shall be 5 1/4 inches. Cast-iron box shall have a heavy coat of bituminous paint.

2.1.2.6 Tapping Sleeves

Body: 304 Stainless Steel.

Bolts and Nuts: 304 Stainless Steel.

Gaskets: Gaskets are made of virgin Styrene Butadiene Rubber (SBR) compounded for water and sewer service in accordance wtih ASTM D 2000 3 BA715.

Pressure: Saddle shall be suitable for a maximum working pressure of 150 psi and a maximum hydrostatic pressure of 200 psi.

Standards: The service saddle shall meet the requirements of ANSI/AWWA C800.

2.1.2.7 Sleeve-Type Mechanical Couplings

Couplings shall be designed to couple plain-end piping by compression of a ring gasket at each end of the adjoining pipe sections. The coupling shall consist of one middle ring flared or beveled at each end to provide a gasket seat; two follower rings; two resilient tapered rubber gaskets; and bolts and nuts to draw the follower rings toward each other to compress the gaskets. The middle ring and the follower rings shall be true circular sections free from irregularities, flat spots, and surface defects; the design shall provide for confinement and compression of the gaskets. For ductile iron pipe, the middle ring shall be of cast-iron or steel; and the follower rings shall be of malleable or ductile iron. Cast iron, ASTM A 48/A 48M, not less than Class 25. Malleable and ductile iron shall, conform to ASTM A 47/A 47M and ASTM A 536, respectively. Steel shall have a strength not less than that of the pipe. Gaskets shall be designed for resistance to set after installation and shall meet the applicable requirements specified for gaskets for mechanical joint in AWWA C111. Bolts shall be track-head type, ASTM A 307, Grade A, with nuts, ASTM A 563, Grade A; or round-head square-neck type bolts, ANSI B18.5.2.1M and ASME B18.5.2.2M with hex nuts, ASME B18.2.2. Bolts shall be 5/8 inch in diameter. Bolt holes in follower rings shall be of a shape to hold fast the necks of the bolts used. Mechanically coupled joints using a sleeve-type mechanical coupling shall not be used as an optional method of jointing except where pipeline is adequately anchored to resist tension pull across the joint. Mechanical couplings shall provide a tight flexible joint under all reasonable conditions, such as pipe movements caused by expansion, contraction, slight setting or shifting in the ground, minor variations in trench gradients, and traffic vibrations. Couplings shall be of strength not less than the adjoining pipeline.

2.2 WATER SERVICE LINE MATERIALS

2.2.1 Piping Materials

2.2.1.1 Plastic Piping

Plastic pipe and fittings shall bear the seal of the National Sanitation Foundation (NSF) for potable water service. Plastic pipe and fittings shall be supplied from the same manufacturer.

a. Polyvinyl Chloride (PVC) Plastic Piping with Screw Joints: ASTM D 1785, Schedule 40; or ASTM D 2241, with SDR as necessary to provide 150 psi minimum pressure rating. Fittings, ASTM D 2466 or ASTM D 2467. Pipe and fittings shall be of the same PVC

plastic material and shall be one of the following pipe/fitting combinations, as marked on the pipe and fitting, respectively: PVC 1120/PVC I; PVC 1220/PVC 12; PVC 2120/PVC II; PVC 2116/PVC II. Solvent cement for jointing, ASTM D 2564. Pipe couplings, when used shall be tested as required by ASTM D 2464.

b. Polyvinyl Chloride (PVC) Plastic Piping with Elastomeric-Gasket Joints:

Pipe shall conform to dimensional requirements of ASTM D 1785 Schedule 40, with joints meeting the requirements of 150 psi working pressure, 200 psi hydrostatic test pressure, unless otherwise shown or specified.

c. Polyvinyl Chloride (PVC) Plastic Piping with Solvent Cement Joints:

Pipe shall conform to dimensional requirements of ASTM D 1785 or ASTM D 2241 with joints meeting the requirements of 150 psi working pressure and 200 psi hydrostatic test pressure.

2.2.1.2 Insulating Joints

Joints between pipe of dissimilar metals shall have a rubber-gasketed or other suitable approved type of insulating joint or dielectric coupling which will effectively prevent metal-to-metal contact between adjacent sections of piping.

2.2.2 Water Service Line Appurtenances

2.2.2.1 Corporation Stops

Ground key type; bronze, ASTM B 61 or ASTM B 62; and suitable for the working pressure of the system. Ends shall be suitable for solder-joint, or flared tube compression type joint. Threaded ends for inlet and outlet of corporation stops, AWWA C800; coupling nut for connection to flared copper tubing, ASME B16.26.

2.2.2.2 Curb or Service Stops

Ground key, round way, inverted key type; made of bronze, ASTM B 61 or ASTM B 62; and suitable for the working pressure of the system. Ends shall be as appropriate for connection to the service piping. Arrow shall be cast into body of the curb or service stop indicating direction of flow.

2.2.2.3 Service Clamps

Service clamps used for repairing damaged cast-iron, steel, PVC or asbestos-cement pipe shall have a pressure rating not less than that of the pipe to be connected and shall be either the single or double flattened strap type. Clamps shall have a galvanized malleable-iron body with cadmium plated straps and nuts. Clamps shall have a rubber gasket cemented to the body.

2.2.2.4 Goosenecks

Type K copper tubing. Joint ends for goosenecks shall be appropriate for connecting to corporation stop and service line. Length of goosenecks shall be in accordance with standard practice.

2.2.2.5 Dielectric Fittings

Dielectric fittings shall be installed between threaded ferrous and nonferrous metallic pipe, fittings and valves, except where corporation stops join mains. Dielectric fittings shall prevent metal-to-metal contact of dissimilar metallic piping elements and shall be suitable for the required working pressure.

2.2.2.6 Check Valves

Check valves shall be designed for a minimum working pressure of 150 psi or as indicated. Valves shall have a clear waterway equal to the full nominal diameter of the valve. Valves shall open to permit flow when inlet pressure is greater than the discharge pressure, and shall close tightly to prevent return flow when discharge pressure exceeds inlet pressure. The size of the valve, working pressure, manufacturer's name, initials, or trademark shall be cast on the body of each valve. Valves 2 inches and larger shall be outside lever and spring type.

a. Valves 2 inches and smaller shall be all bronze designed for screwed fittings, and shall conform to MSS SP-80, Class 150, Types 3 and 4 as suitable for the application.

2.2.2.7 Gate Valves 3 Inch Size and Larger on Buried Piping

Gate valves 3 inch size and larger on buried piping AWWA C500 or UL 262 and of one manufacturer. Valves, AWWA C500, nonrising stem type with double-disc gates. Valves, UL 262, inside-screw type with operating nut, split wedge or double disc type gate, and designed for a hydraulic working pressure of 175 psi. Materials for UL 262 valves conforming to the reference standards specified in AWWA C500. Valves shall open by counterclockwise rotation of the valve stem. Stuffing boxes shall have 0-ring stem seals and shall be bolted and constructed so as to permit easy removal of parts for repair. Valves shall have ends suitable for joining to the pipe used.

2.2.2.8 Gate Valves Smaller than 3 Inch in Size on Buried Piping

Gate valves smaller than 3 inch size on Buried Piping MSS SP-80, Class 150, solid wedge, nonrising stem. Valves shall have flanged or threaded end connections, with a union on one side of the valve. Provide handwheel operators.

2.2.2.9 Curb Boxes

Provide a curb box for each curb or service stop. Curb boxes shall be of cast iron of a size suitable for the stop on which it is to be used. Provide a round head. Cast the word "WATER" on the lid. Each box shall have a heavy coat of bituminous paint.

2.2.2.10 Valve Boxes

Provide a valve box for each gate valve on buried piping. Valve boxes shall be of cast iron of a size suitable for the valve on which it is to be used and shall be adjustable. Provide a round head. Cast the word "WATER" on the lid. The least diameter of the shaft of the box shall be 5 1/4 inches. Cast-iron box shall have a heavy coat of bituminous paint.

2.2.2.11 Tapping Sleeves

Tapping sleeves of the sizes indicated for connection to existing main shall be the cast gray, ductile, or malleable iron, split-sleeve type with flanged or grooved outlet, and with bolts, follower rings and gaskets on each end of the sleeve. Construction shall be suitable for a maximum working pressure of 150 psi. Bolts shall have square heads and hexagonal nuts. Longitudinal gaskets and mechanical joints with gaskets shall be as recommended by the manufacturer of the sleeve. When using grooved mechanical tee, it shall consist of an upper housing with full locating collar for rigid positioning which engages a machine-cut hole in pipe, encasing an elastomeric gasket which conforms to the pipe outside diameter around the hole and a lower housing with positioning lugs, secured together during assembly by nuts and bolts as specified, pretorqued to 50 foot-pound.

2.2.2.12 Disinfection

Chlorinating materials shall conform to the following:

Chlorine, Liquid: AWWA B301.

Hypochlorite, Calcium and Sodium: AWWA B300.

PART 3 EXECUTION

3.1 INSTALLATION OF PIPELINES

3.1.1 General Requirements for Installation of Pipelines

These requirements shall apply to all pipeline installation except where specific exception is made in the "Special Requirements..." paragraphs.

3.1.1.1 Location of Water Lines

Terminate the work covered by this section at a point approximately 5 feet from the building, unless otherwise indicated.Do not lay water lines in the same trench with gas lines, fuel lines or electric wiring.

a. Water Piping Installation Parallel With Sewer Piping

(1) Normal Conditions: Lay water piping at least 10 feet horizontally from a sewer or sewer manhole whenever possible. Measure the distance edge-to-edge.

(2) Unusual Conditions: When local conditions prevent a horizontal separation of 10 feet, the water piping may be laid closer to a sewer or sewer manhole provided that:

(a) The bottom (invert) of the water piping shall be at least 18 inches above the top (crown) of the sewer piping.

(b) Where this vertical separation cannot be obtained, the sewer piping shall be constructed of AWWA-approved water pipe and pressure tested in place without leakage prior to backfilling. Approved waste water disposal method shall be utilized.

(c) The sewer manhole shall be of watertight construction and tested in place.

b. Installation of Water Piping Crossing Sewer Piping

(1) Normal Conditions: Water piping crossing above sewer piping shall be laid to provide a separation of at least 18 inches between the bottom of the water piping and the top of the sewer piping.

(2) Unusual Conditions: When local conditions prevent a vertical separation described above, use the following construction:

(a) Sewer piping passing over or under water piping shall be constructed of AWWA-approved ductile iron water piping, pressure tested in place without leakage prior to backfilling.

(b) Water piping passing under sewer piping shall, in addition, be protected by providing a vertical separation of at least 18 inches between the bottom of the sewer piping and the top of the water piping; adequate structural support for the sewer piping to prevent excessive deflection of the joints and the settling on and breaking of the water piping; and that the length, minimum 20 feet, of the water piping be centered at the point of the crossing so that joints shall be equidistant and as far as possible from the sewer piping.

c. Sewer Piping or Sewer Manholes: No water piping shall pass through or come in contact with any part of a sewer manhole.

3.1.1.2 Earthwork

Perform earthwork operations in accordance with Section 31 23 00.00 20, EXCAVATION AND FILL.

3.1.1.3 Pipe Laying and Jointing

Remove fins and burrs from pipe and fittings. Before placing in position, clean pipe, fittings, valves, and accessories, and maintain in a clean condition. Provide proper facilities for lowering sections of pipe into trenches. Do not under any circumstances drop or dump pipe, fittings, valves, or any other water line material into trenches. Cut pipe in a neat workmanlike manner accurately to length established at the site and work into place without springing or forcing. Replace by one of the proper length any pipe or fitting that does not allow sufficient space for proper installation of jointing material. Blocking or wedging between bells and spigots will not be permitted. Lay bell-and-spigot pipe with the bell end pointing in the direction of laying. Grade the pipeline in straight lines; avoid the formation of dips and low points. Support pipe at proper elevation and grade. Secure firm, uniform support. Wood support blocking will not be permitted. Lay pipe so that the full length of each section of pipe and each fitting will rest solidly on the pipe bedding; excavate recesses to accommodate bells, joints, and couplings. Provide anchors and supports where indicated and where necessary for fastening work into place. Make proper provision for expansion and contraction of pipelines. Keep trenches free of water until joints have been properly made. At the end of each work day, close open ends of pipe temporarily with wood blocks or bulkheads. Do not lay pipe when conditions of trench or weather prevent installation. Depth of cover over top of pipe shall not be less than 2 1/2 feet.

3.1.1.4 Installation of Tracer Wire

Install a continuous length of tracer wire for the full length of each run of nonmetallic pipe. Attach wire to top of pipe in such manner that it will not be displaced during construction operations.

3.1.1.5 Connections to Existing Water Lines

Make connections to existing water lines after approval is obtained and with a minimum interruption of service on the existing line. Make connections to existing lines under pressure in accordance with the recommended procedures of the manufacturer of the pipe being tapped.

3.1.2 Special Requirements for Installation of Water Mains

3.1.2.1 Installation of Ductile-Iron Piping

Unless otherwise specified, install pipe and fittings in accordance with paragraph entitled "General Requirements for Installation of Pipelines" and with the requirements of AWWA C600 for pipe installation, joint assembly, valve-and-fitting installation, and thrust restraint.

a. Jointing: Make push-on joints with the gaskets and lubricant specified for this type joint; assemble in accordance with the applicable requirements of AWWA C600 for joint assembly. Make mechanical joints with the gaskets, glands, bolts, and nuts specified for this type joint; assemble in accordance with the applicable requirements of AWWA C600 for joint assembly and the recommendations of Appendix A to AWWA C111. Make flanged joints with the gaskets, bolts, and nuts specified for this type joint. Make flanged joints up tight; avoid undue strain on flanges, fittings, valves, and other accessories. Align bolt holes for each flanged joint. Use full size bolts for the bolt holes; use of undersized bolts to make up for misalignment of bolt holes or for any other purpose will not be permitted. Do not allow adjoining flange faces to be out of parallel to such degree that the flanged joint cannot be made watertight without overstraining the flange. When flanged pipe or fitting has dimensions that do not allow the making of a proper flanged joint as specified, replace it by one of proper dimensions. Use setscrewed flanges to make flanged joints where conditions prevent the use of full-length flanged pipe and assemble in accordance with the recommendations of the setscrewed flange manufacturer. Assemble joints made with sleeve-type mechanical couplings in accordance with the recommendations of the coupling manufacturer.

b. Allowable Deflection: The maximum allowable deflection shall be as given in AWWA C600. If the alignment requires deflection in excess of the above limitations, special bends or a sufficient number of shorter lengths of pipe shall be furnished to provide angular deflections within the limit set forth.

c. Pipe Anchorage: Provide concrete thrust blocks (reaction backing) for pipe anchorage. Thrust blocks shall be in accordance with the requirements of AWWA C600 for thrust restraint, except that size and positioning of thrust blocks shall be as indicated. Use concrete, ASTM C 94/C 94M, having a minimum compressive strength of

2,500 psi at 28 days; or use concrete of a mix not leaner than one part cement, 2 1/2 parts sand, and 5 parts gravel, having the same minimum compressive strength.

d. Exterior Protection: Completely encase buried ductile iron pipelines with polyethylene tube or sheet, using Class A polyethylene film, in accordance with AWWA C105.

3.1.2.2 Installation of Valves and Hydrants

a. Installation of Valves: Install gate valves, AWWA C500 and UL 262, in accordance with the requirements of AWWA C600 for valve-and-fitting installation and with the recommendations of the Appendix ("Installation, Operation, and Maintenance of Gate Valves") to AWWA C500. Install gate valves, AWWA C509, in accordance with the requirements of AWWA C600 for valve-and-fitting installation and with the recommendations of the Appendix ("Installation, Operation, and Maintenance of Gate Valves") to AWWA C509. Make and assemble joints to gate valves as specified for making and assembling the same type joints between pipe and fittings.

b. Installation of Hydrants: Install hydrants, except for metal harness, in accordance with AWWA C600 for hydrant installation and as indicated. Make and assemble joints as specified for making and assembling the same type joints between pipe and fittings. Provide metal harness as specified under pipe anchorage requirements for the respective pipeline material to which hydrant is attached. Install hydrants with the 4 1/2 inch connections facing the adjacent paved surface. If there are two paved adjacent surfaces, contact the Contracting Officer for further instructions.

3.1.3 Installation of Water Service Piping

3.1.3.1 Location

Connect water service piping to the building service where the building service has been installed. Where building service has not been installed, terminate water service lines approximately 5 feet from the building line at the points indicated; such water service lines shall be closed with plugs or caps.

3.1.3.2 Service Line Connections to Water Mains

Connect service lines 2 inch size to the main as indicated. Connect service lines to ductile-iron water mains in accordance with AWWA C600 for service taps. Connect service lines to PVC plastic water mains in accordance with UBPPA UNI-B-8 and the recommendations of AWWA M23, Chapter 9, "Service Connections." Connect service lines to steel water mains in accordance with the recommendations of the steel water main pipe manufacturer and with the recommendations for special and valve connections and other appurtenances in AWWA M11, Chapter 13, "Supplementary Design Data and Details."

3.1.4 Special Requirements for Installation of Water Service Piping
3.1.4.1 Installation of Plastic Piping

Install pipe and fittings in accordance with paragraph entitled "General

Requirements for Installation of Pipelines" and with the applicable requirements of ASTM D 2774 and ASTM D 2855, unless otherwise specified. Handle solvent cements used to join plastic piping in accordance with ASTM F 402.

a. Jointing: Make solvent-cemented joints for PVC plastic piping using the solvent cement previously specified for this material; assemble joints in accordance with ASTM D 2855. Make plastic pipe joints to other pipe materials in accordance with the recommendations of the plastic pipe manufacturer.

b. Plastic Pipe Connections to Appurtenances: Connect plastic pipe service lines to corporation stops and gate valves in accordance with the recommendations of the plastic pipe manufacturer.

3.1.4.2 Service Lines for Sprinkler Supplies

Water service lines used to supply building sprinkler systems for fire protection shall be connected to the water distribution main in accordance with NFPA 24.

3.1.5 Disinfection

Prior to disinfection, obtain Contracting Officer approval of the proposed method for disposal of waste water from disinfection procedures. Disinfect new water piping and existing water piping affected by Contractor's operations in accordance with AWWA C651. Fill piping systems with solution containing minimum of 50 parts per million of available chlorine and allow solution to stand for minimum of 24 hours. Flush solution from the systems with domestic water until maximum residual chlorine content is within the range of 0.2 and 0.5 parts per million, or the residual chlorine content of domestic water supply. Obtain at least two consecutive satisfactory bacteriological samples from new water piping, analyze by a certified laboratory, and submit the results prior to the new water piping being placed into service. Disinfection of systems supplying nonpotable water is not required.

3.2 FIELD QUALITY CONTROL

3.2.1 Field Tests and Inspections

Prior to hydrostatic testing, obtain Contracting Officer approval of the proposed method for disposal of waste water from hydrostatic testing. The Contracting Officer will conduct field inspections and witness field tests specified in this section. The Contractor shall perform field tests, and provide labor, equipment, and incidentals required for testing. The Contractor shall produce evidence, when required, that any item of work has been constructed in accordance with the drawings and specifications. Do not begin testing on any section of a pipeline where concrete thrust blocks have been provided until at least 5 days after placing of the concrete.

3.2.2 Testing Procedure

Test water mains and water service lines in accordance with the applicable specified standard, except for the special testing requirements given in paragraph entitled "Special Testing Requirements." Test ductile-iron water mains and water service lines in accordance with the requirements of AWWA C600 for hydrostatic testing. The amount of leakage on ductile-iron pipelines with mechanical-joints or push-on joints shall not exceed the

amounts given in AWWA C600; no leakage will be allowed at joints made by any other method. Test PVC plastic water mains and water service lines made with PVC plastic water main pipe in accordance with the requirements of UBPPA UNI-B-3 for pressure and leakage tests. The amount of leakage on pipelines made of PVC plastic water main pipe shall not exceed the amounts given in UBPPA UNI-B-3, except that at joints made with sleeve-type mechanical couplings, no leakage will be allowed. Test water service lines in accordance with applicable requirements of AWWA C600 for hydrostatic testing. No leakage will be allowed at plastic pipe joints or flanged joints.

3.2.3 Special Testing Requirements

For pressure test, use a hydrostatic pressure 50 psi greater than the maximum working pressure of the system, except that for those portions of the system having pipe size larger than 2 inches in diameter, hydrostatic test pressure shall be not less than 200 psi. Hold this pressure for not less than 2 hours. Prior to the pressure test, fill that portion of the pipeline being tested with water for a soaking period of not less than 24 hours. For leakage test, use a hydrostatic pressure not less than the maximum working pressure of the system. Leakage test may be performed at the same time and at the same test pressure as the pressure test.

3.3 CLEANUP

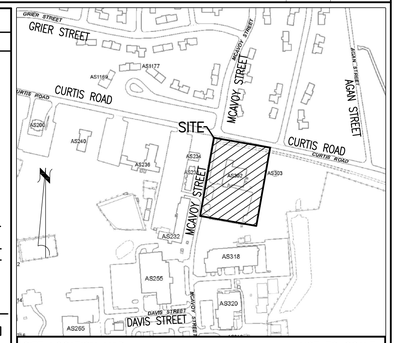
Upon completion of the installation of water lines, and appurtenances, all debris and surplus materials resulting from the work shall be removed.

-- End of Section --

REVISIONS			
SYM		DATE	APPROVED
1	MODIFIED TRAILERS AND ADDED FIRE WATER LINE	9/18/12	JKA

CIVIL LEGEND

EXISTING	DESCRIPTION	NEW
⋈	WATER VALVE	⋈
PIV	POST INDICATOR VALVE	
	THRUST BLOCK	
	FIRE HYDRANT	
T	COMMUNICATION MANHOLE	
S	SANITARY SEWER MANHOLE	
CO	SANITARY SEWER CLEANOUT	
D	STORM SEWER MANHOLE	
	STORM DRAIN	
	PEDESTAL	
	POWER POLE	
	LIGHT POLE	
	GUY WIRE	
— S —	SANITARY SEWER (GRAVITY)	S
— D —	STORM SEWER	
— W —	DOMESTIC WATER	W
— FW —	FIRE WATER	FW
— ST —	UNDERGROUND STEAM	
— OHE —	OVERHEAD ELECTRICAL	
— UGE —	UNDERGROUND ELECTRICAL	
— UGT —	UNDERGROUND COMMUNICATIONS	
	FENCE	
	CONCRETE	
	GRAVEL	
	ASPHALTIC CONCRETE	
	TEMPORARY BENCHMARK	
× 5.00	SPOT ELEVATIONS	
5.00	CONTOUR LINES	
	TREE	
	SILT FENCE	
	SURVEY CONTROL POINT	
	SOURCE/DESTINATION UNKNOWN	
	DEMOLITION ITEMS	X



SITE LOCATION MAP NOT TO SCALE

GENERAL CONSTRUCTION NOTES:

1. THE LOCATION AND DEPTHS OF EXISTING UTILITIES SHOWN ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SCANNING THE AREA OF WORK TO IDENTIFY TO HIS OWN SATISFACTION THE EXTENT OF UTILITIES PRESENT INCLUDING THE UTILITIES INDICATED TO BE PRESENT, THOSE NOT SHOWN, AND THOSE SHOWN TO BE IN A DIFFERENT LOCATION.
2. PHYSICAL SITE FEATURES OUTSIDE THE AREA OF WORK OR THOSE FEATURES NOT RELEVANT TO THE WORK BEING PERFORMED ARE NOT SHOWN FOR CLARITY.
3. ALL EXISTING VEGETATED AREAS DISTURBED DURING CONSTRUCTION SHALL BE REVEGETATED IN ACCORDANCE WITH THE PROJECT VEGETATION PLAN, SEE DETAIL B, SHEET C-501.

NEW WORK ITEMS:

1. REMOVE & REINSTALL EXISTING SIGN TO INSTALL WATER SERVICE.
2. NEW STEPS & LANDING, SEE DETAIL A, SHEET C-502.
3. NEW CONCRETE SIDEWALK, SEE DETAIL A, SHEET C-501.
4. NEW 10" x 6" OR 10" x 2" TAPPING SADDLE & VALVE – SEE DETAIL C, SHEET C-501 AND SPECIFICATIONS.
5. NEW 1" VALVE – SEE DETAIL C, SHEET C-501.
6. THRUST BLOCK – SEE DETAIL D, SHEET C-501.
7. PROVIDE ALL TRENCHING IN ACCORDANCE WITH DETAIL E, SHEET C-501.
8. CONNECT NEW 6" PVC SEWER TO EXISTING SEWER MANHOLE.
9. NEW SEWER CLEANOUT – SEE DETAIL F, SHEET C-501.
10. NEW 2" BLOWOFF ASSEMBLY. SEE DETAIL G, SHEET C-501.
11. NEW CHAIN LINK FENCE – SEE DETAIL H, SHEET C-501.
12. NEW 6" POST INDICATOR VALVE – SEE DETAIL J, SHEET C-501 AND SPECIFICATIONS.
13. NEW FIRE HYDRANT – SEE DETAIL K, SHEET C-501.
14. NEW CONCRETE BOLLARD (TYPICAL OF 8) – SEE DETAIL L, SHEET C-501.
15. PAVEMENT CUT & PATCH – SEE DETAIL M, SHEET C-501.
16. NEW TEMPORARY TRAILER, SIZE AS INDICATED. SEE DETAIL A, SHEET C-502.
17. NEW BACKFLOW PREVENTER & ENCLOSURE, SEE DETAIL B, SHEET C-502 AND SPECIFICATIONS.
18. ROUTE NEW WATER SERVICE ABOVE EXISTING SEWER MAIN. PROVIDE MINIMUM 18" VERTICAL SEPARATION.
19. ROUTE NEW WATER SERVICE ABOVE NEW SEWER SERVICE. PROVIDE MINIMUM 12" VERTICAL SEPARATION.
20. EXISTING WOOD UTILITY POLE TO BE REMOVED.

SPECIAL NOTE:

1. THE CONTRACTOR SHALL PROVIDE A REDUCED PRESSURE DOUBLE CHECK BACKFLOW ASSEMBLY (RPZ) ON THE FIRE MAIN RISER IN THE MECHANICAL ROOM. THE RPZ SHALL MEET AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARD AND CARRY THE ASSE SEAL OR APPEAR ON THE UNIVERSITY OF CALIFORNIA APPROVED LIST.

A SITE PLAN
C-101/C-101 SCALE: 1" = 20'

GRAPHIC SCALE: 1" = 20'

AE PROJECT # 12033

AVOLIS ENGINEERING, P.A.
P.O. BOX 15564
NEW BERN, NC 28561
PH.(252) 633-0068, FAX (252) 633-6507

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15738 9/21/12 JOHN C. AVOLIS

C-101

MAUNE BELANGIA FAULKENBERRY ARCHITECTS PA
317-C POLLOCK STREET NEW BERN, NC
MBFA NO.: 39

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

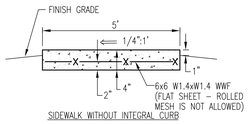
REPAIR THE NEW RIVER POLICE STATION, BUILDING AS302

SITE PLAN

DES. J.K. AVOLIS, P.E.	
DR. MSP/WFF	
CHK. J.C. AVOLIS, P.E.	
SUBMITTED BY:	
DESIGN DIR.	
APPROVED: PWO OR OICC	DATE
SATISFACTORY TO:	DATE

SIZE	CODE IDENT NO.	NAVFAC DRAWING NO.	
F	80091	60011811	
		CONST. CONTR. NO. N40085-12-B-0066	
SCALE:	SPEC. 05-12-0066	SHEET 02 OF 48	

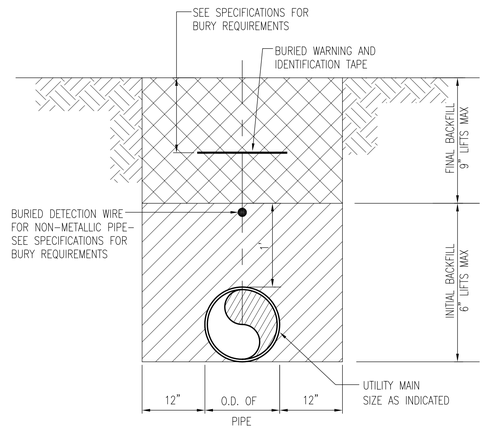
REVISIONS			
SYM		DATE	APPROVED
1	MODIFIED TRAILERS AND ADDED FIRE WATER LINE	9/18/12	JKA



SIDEWALK WITHOUT INTEGRAL CURB

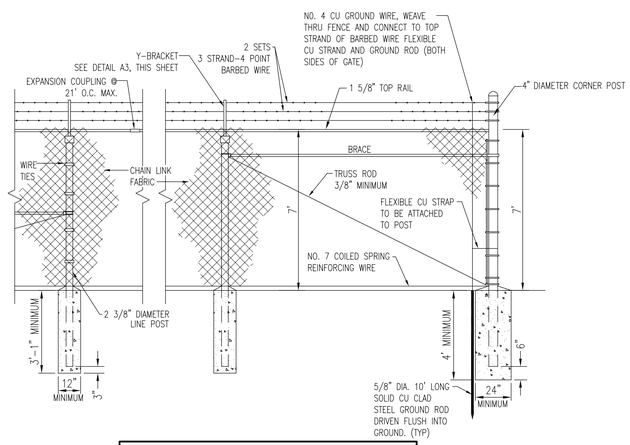
NOTES:
1. PROVIDE EXPANSION JOINTS ALONG ALL EXISTING STRUCTURES AND WALKS AND AT 50' INTERVALS ALONG STRAIGHT SECTIONS OF WALK
2. PROVIDE CONTRACTION JOINTS AT 5'-0" INTERVALS AND AT ALL CHANGES IN DIRECTION OF WALK. CONTRACTION JOINTS SHALL BE 1/8" WIDE X 3/4" DEEP.

A C-101 C-501 CONCRETE SIDEWALK NOT TO SCALE



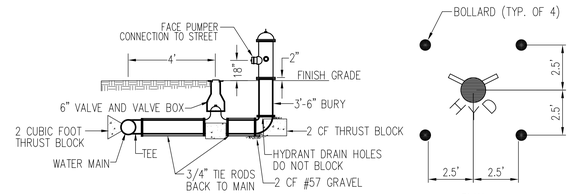
PIPE TRENCH WITHOUT BEDDING

E C-101 C-501 PIPE TRENCH SECTION NOT TO SCALE



NOTE:
THE PERIMETER CHAIN LINK FENCE IS TEMPORARY AND SHALL BE REMOVED UPON THE COMPLETION OF CONSTRUCTION

H C-101 C-501 7' CHAIN LINK FENCE NOT TO SCALE



PLAN

K C-101 C-501 FIRE HYDRANT ASSEMBLY NOT TO SCALE

TEMPORARY VEGETATIVE SEEDING (PRIOR TO ESTABLISHING PERMANENT VEGETATION)
AFTER COMPLETION OF GRADING ACTIVITIES AND THE CONSTRUCTION OF SWALES, ALL EXPOSED AREAS SHALL BE SEEDED TO THE FOLLOWING SPECIFICATIONS:

SEED BED
LIME 1-1/2 TON PER ACRE
FERTILIZER 1/2-TON PER ACRE

SEED
RYE GRAIN 50 LBS PER ACRE
TALL FESCUE 100 LBS PER ACRE

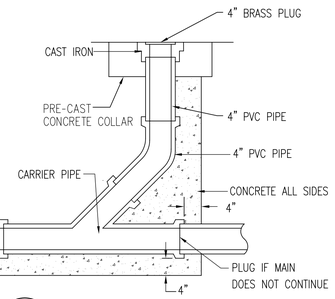
SUPPLEMENTAL SEED
MAY THROUGH AUGUST:
CENTIPEDE 5 LBS PER ACRE

PROCEDURE
STRAW MULCH SHALL BE APPLIED AT A RATE WHICH WILL INSURE APPROXIMATELY 75% COVERAGE OF THE SEEDED AREA. THE STRAW AND SOWN SEED WILL BE LIGHTLY DISCED INTO THE BED TO GIVE IT FURTHER RESISTANCE TO BLOWING AND WASHING.
THE CONTRACTOR SHALL GUARANTEE A FULL STAND OF GRASS OVER THE ENTIRE DISTURBED AREA. IF NECESSARY THE CONTRACTOR WILL WET DOWN THE AREAS TO ASSIST IN SEED GERMINATION OR AID IN GROWTH IN TIMES OF EXCESSIVELY DRY WEATHER. A STAND OF GRASS WILL BE CONSIDERED ACCEPTABLE WHEN THE ENTIRE STAND OF GRASS IS AT LEAST FOUR INCHES HIGH AND HAS ACHIEVED AT LEAST 95% COVERAGE OF DISTURBED AREAS. RESEEDING WILL BE REQUIRED AS NECESSARY BY THE CONTRACTOR TO OBTAIN THE SPECIFIED STAND OF GRASS.

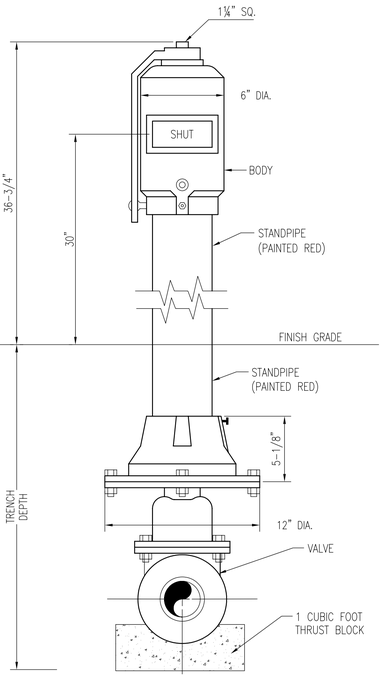
PERMANENT VEGETATION
ALL DISTURBED AREAS NOT COVERED WITH BUILDINGS, PAVEMENTS, OR OTHER IMPERMEABLE SURFACES SHALL BE SODDED AS THE FINAL/PERMANENT VEGETATION.

SPECIAL SEEDING NOTE:
CUT & FILL SLOPES WILL, WITHIN 7 CALENDAR DAYS DAYS OF COMPLETION OF ANY PHASE OF GRADING, BE PLANTED AND PROVIDED WITH TEMPORARY OR PERMANENT GROUND COVER, DEVICES, OR STRUCTURES SUFFICIENT TO RESTRAIN EROSION.

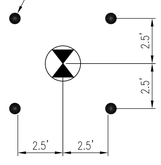
B C-101 C-501 VEGETATION PLAN NOT TO SCALE



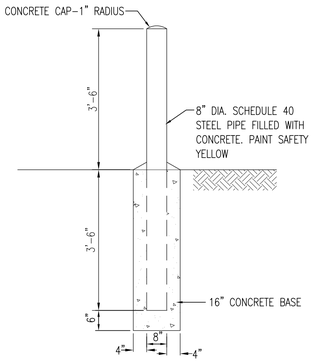
F C-101 C-501 SEWER CLEANOUT NOT TO SCALE



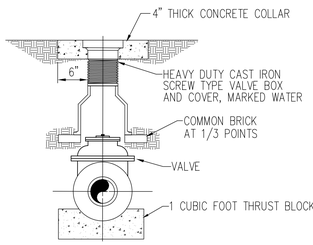
J C-101 C-501 POST INDICATOR VALVE NOT TO SCALE



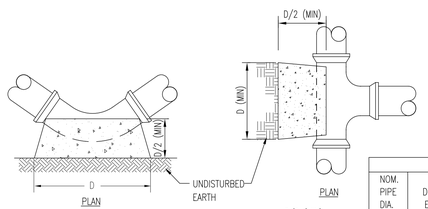
PLAN



L C-101 C-501 CONCRETE BOLLARD NOT TO SCALE

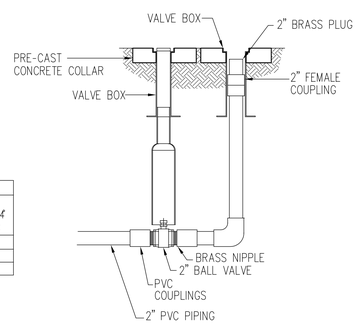


C C-101 C-501 VALVE AND VALVE BOX NOT TO SCALE



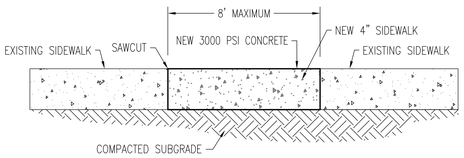
THRUST BLOCK DIMENSION D (IN FEET)					
NOM. PIPE DIA.	DEAD END	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND
2"-4"	1.3	1.6	1.2	0.9	0.8
6"	2.1	2.3	1.7	1.2	0.8
8"	2.5	2.8	2.2	1.5	1.0

D C-101 C-501 THRUST BLOCK NOT TO SCALE



END VIEW

G C-101 C-501 2" BLOWOFF ASSEMBLY NOT TO SCALE



TYPICAL REPAIR OF CONCRETE SIDEWALK CUT

NOTE: REMOVE CONCRETE SIDEWALK AT JOINTS WHEN JOINTS ARE LOCATED WITHIN 5 FEET OF AREA OF WORK. CONCRETE FINISH & JOINT PATTERN SHALL MATCH EXISTING.

M C-101 C-501 CUT & PATCH NOT TO SCALE

AE PROJECT # 12033

AVOLIS ENGINEERING, P.A.
P.O. BOX 15564
NEW BERN, NC 28561
PH.(252) 633-0068, FAX (252) 633-6507

NORTH CAROLINA PROFESSIONAL SEAL 15739 ENGINEER JOHN K. AVOLIS

C-501

MBFA NO.: XXXX
MAUNE BELANGIA FAULKENBERRY ARCHITECTS PA
317-C POLLOCK STREET NEW BERN, NC

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

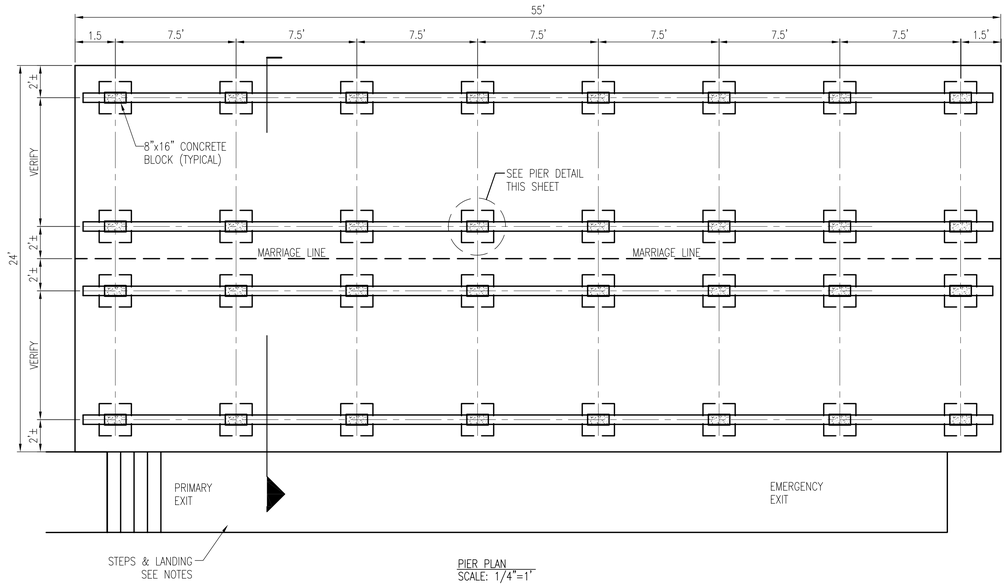
DES. J.K. AVOLIS, P.E.
DR. MSP/WFF
CHK. J.C. AVOLIS, P.E.
SUBMITTED BY:
DESIGN DIR.
APPROVED: PWO OR OICC DATE
SATISFACTORY TO: DATE

REPAIR THE NEW RIVER
POLICE STATION, BUILDING AS302

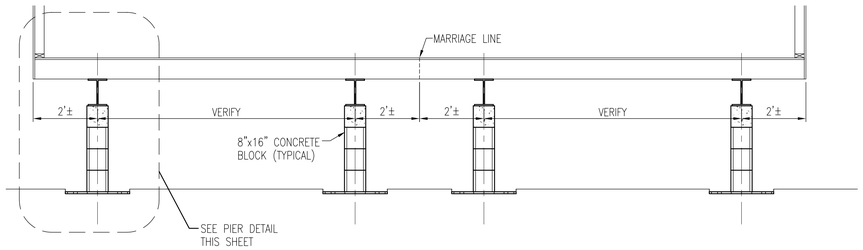
DETAILS

SIZE F | CODE IDENT NO. 80091 | NAVFAC DRAWING NO. 60011812
CONST. CONTR. NO. N40085-12-B-0066
SCALE: | SPEC. 05-12-0066 | SHEET 03 OF 48

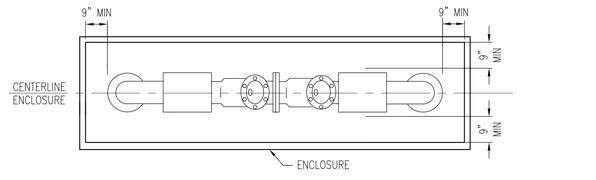
REVISIONS			
SYM		DATE	APPROVED
1	MODIFIED TRAILERS AND ADDED FIRE WATER LINE	9/18/12	JKA

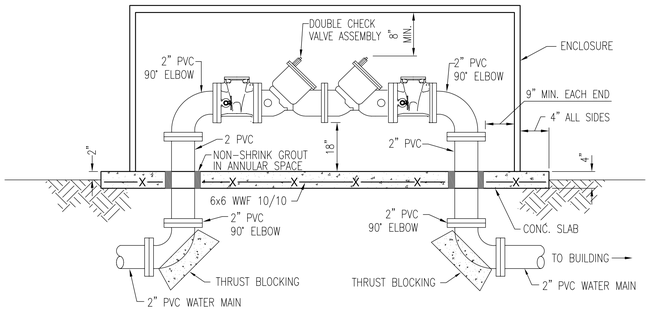


PIER PLAN
SCALE: 1/4"=1'

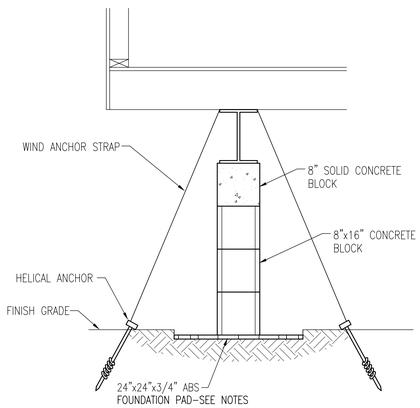


FOUNDATION OFFICE CROSS-SECTION
SCALE: 1/2"=1'

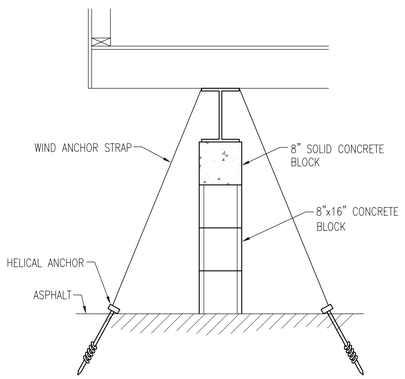




B / C-101 C-502 — DOUBLE CHECK VALVE ASSEMBLY & ENCLOSURE AT TEMPORARY OFFICES
NOT TO SCALE



INSTALLATION IN GRASS AREA



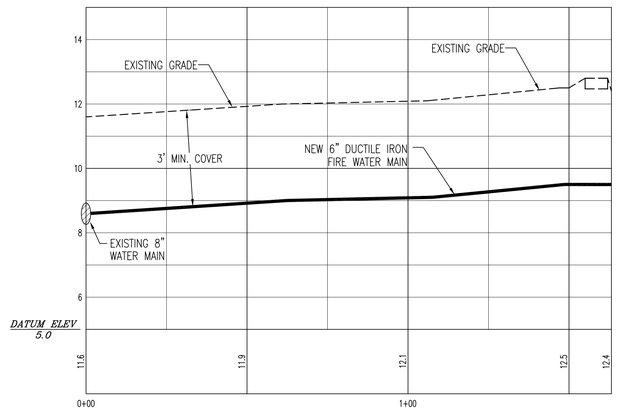
INSTALLATION ON PAVED AREA

PIER INSTALLATION
SCALE: 1"=1'

FOUDATION PAD NOTES:
1. REMOVE GRASS SURFACING AND TOPSOIL.
2. LEVEL AND COMPACT SUBGRADE PRIOR TO PLACING FOUNDATION PAD.

NOTES:
1. ALL TEMPORARY OFFICE TRAILERS INSTALLED ON THIS PROJECT SHALL BE APPROVED FOR INSTALLATION WITHIN A 130MPH (3-SECOND GUST) WIND ZONE.
2. THE FOUNDATION REQUIREMENTS DEPICTED HEREON ARE APPROXIMATE. THE CONTRACTOR SHALL PROVIDE A FOUNDATION PIER PLAN, FOOTING DETAILS, AND STRAPPING PLANS AND DETAILS FOR THE MOBILE OFFICE SELECTED. THIS INFORMATION SHALL BE PREPARED BY A NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER AND SHALL BE SUBMITTED TO THE CONTRACTING OFFICER FOR APPROVAL PRIOR TO ERECTION.
3. THE CONTRACTOR SHALL PROVIDE A 5'x5' ELEVATED LANDINGS AND STEPS FOR ACCESS TO EACH DOOR OF EACH OFFICE UNIT. ADDITIONALLY, ONE HANDICAP ACCESSIBLE RAMP AND ACCESS WAY SHALL BE PROVIDED TO ONE OFFICE TRAILER AS DESIGNATED BY THE CONTRACTING OFFICER. THE STAIRS AND RAMP SHALL BE DESIGNED BY A NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER AND SHALL BE SUBMITTED TO THE CONTRACTING OFFICER FOR APPROVAL PRIOR TO CONSTRUCTION.
4. UPON REMOVAL OF TEMPORARY OFFICE TRAILERS, ALL SURFACES DISTURBED SHALL BE RETURNED TO ITS ORIGINAL CONDITIONS.
5. THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL UTILITY CONNECTION POINTS ON THE MOBILE OFFICES SELECTED AND ADJUST THE SERVICE LINES APPROPRIATELY. THE CONTRACTOR SHALL MAKE ALL UTILITY CONNECTIONS TO THE TRAILERS AND RENDER THEM FULLY FUNCTIONAL.

A / C-101 C-502 — TEMPORARY TRAILER - FOUNDATION PLAN, SECTION, AND DETAILS



C / C-101 C-501 — 6" FIRE WATER MAIN - PROFILE
HOR. SCALE: 1"=20'
VERT. SCALE: 1"=2'

C-502

MBFA NO.: XXXX
MAUNE BELANGIA FAULKENBERRY ARCHITECTS PA
317-C POLLOCK STREET NEW BERN, NC

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

REPAIR THE NEW RIVER POLICE STATION, BUILDING AS302

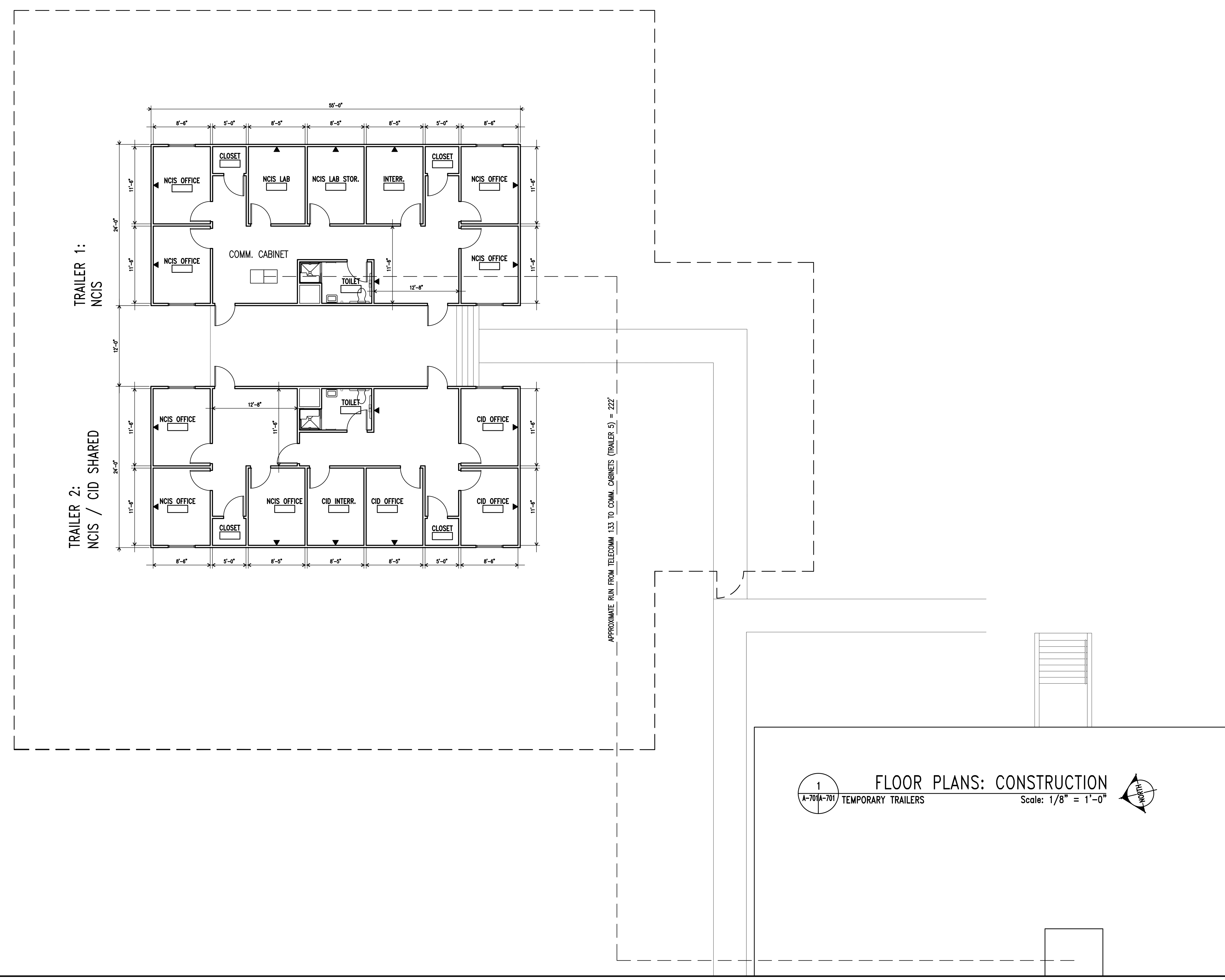
DETAILS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15738 JOHN C. AVOLIS

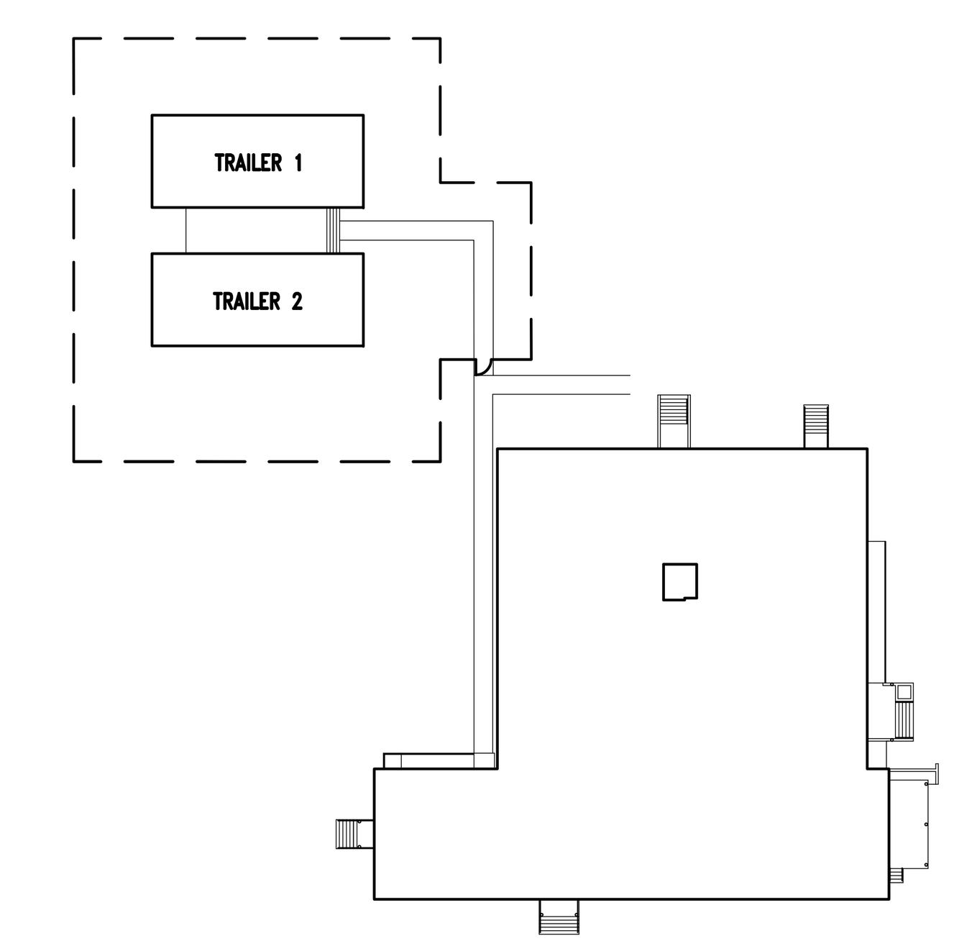
DES. J.K. AVOLIS, P.E.	
DR. MSP/WFF	
CHK. J.C. AVOLIS, P.E.	
SUBMITTED BY:	
DESIGN DIR.	
APPROVED: PWO OR OICC DATE	SIZE F; CODE IDENT NO. 80091; NAVFAC DRAWING NO. 60011813
SATISFACTORY TO: DATE	CONST. CONTR. NO. N40085-12-B-0066
SCALE:	SPEC. 05-12-0066; SHEET 04 OF 48

LEGEND

▲ UNCLASSIFIED NETWORK TELECOMM DROP



1 A-701 A-701 FLOOR PLANS: CONSTRUCTION
TEMPORARY TRAILERS Scale: 1/8" = 1'-0"



2 A-701 A-701 KEY PLAN
TEMPORARY TRAILERS Scale: 1"=50'

REVISED
BY AMENDMENT
09.18.2012

GRAPHIC SCALE: 1/8"=1'-0" 8' 0 4' 8' 16'

GRAPHIC SCALE: 1"=50' 50' 0 50' 100'

WILLIAM L. FAULKENBERRY REGISTERED ARCHITECT NORTH CAROLINA 4862 NEW BERN NC 8/31/2012	MBFA NO.: 1203 MAUNE BELANGIA FAULKENBERRY ARCHITECTS, PA	A-701
		DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA
MAUNE BELANGIA FAULKENBERRY ARCHITECTS P.A. ARCHITECTURAL CORPORATION NORTH CAROLINA CERT. NO. 679 New Bern NC	DES. DLG / DR. JGH / CHK. WLF / SUBMITTED BY: / DESIGN DIR. / APPROVED: PWO OR OICC DATE / SATISFACTORY TO: DATE	REPAIR THE MCAS NEW RIVER POLICE STATION, BLDG AS302 — FLOOR PLANS: TEMPORARY TRAILERS
		SIZE F / CODE IDENT NO. 80091 / NAVFAC DRAWING NO. 60011826 / CONST. CONTR. NO. N40085-12-B-0066
		SCALE: AS NOTED / SPEC. 05-12-0066 / SHEET 17 OF 48