REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS

Report Control Symbol
RCS:

INSTRUCTIONS: *Section I to be completed by Proponent; Sections II and III to be completed by Environmental Planning Function. Continue on separate sheets as necessary. Reference appropriate item number(s).*

SECTION I - PROPONENT INFORMATION

1. TO *(Environmental Planning Function)*	2. FROM *(Proponent organization and functional address symbol)*	2a. TELEPHONE NO.
733 CED/Environmental Element	Old Dominion Utility Service	757-888-0485

3. TITLE OF PROPOSED ACTION
Alternate Wate Line Supply System and Booster Station

4. PURPOSE AND NEED FOR ACTION *(Identify decision to be made and need date)*
Previous water outages due to water main break and maintenance of Newport News waterline requiring a secondary water connection.

5. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES *(DOPAA) (Provide sufficient details for evaluation of the total action.)*
See attached Environmental Assessment/Finding of No Significant Impact.

6. PROPONENT APPROVAL *(Name and Grade)*	6a. SIGNATURE	6b. DATE
JEFF KAPINOS	Jeffy P. Kapinos	20130606

SECTION II - PRELIMINARY ENVIRONMENTAL SURVEY. *(Check appropriate box and describe potential environmental effects including cumulative effects.) (+ = positive effect; 0 = no effect; - = adverse effect; U= unknown effect)*	+	0	-	U
7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE *(Noise, accident potential, encroachment, etc.)*	☐	☑	☐	☐
8. AIR QUALITY *(Emissions, attainment status, state implementation plan, etc.)*	☐	☑	☐	☐
9. WATER RESOURCES *(Quality, quantity, source, etc.)*	☐	☑	☐	☐
SAFETY AND OCCUPATIONAL HEALTH *(Asbestos/radiation/chemical exposure, explosives safety quantity-distance, bird/wildlife aircraft hazard, etc.)*	☐	☑	☐	☐
11. HAZARDOUS MATERIALS/WASTE *(Use/storage/generation, solid waste, etc.)*	☐	☑	☐	☐
12. BIOLOGICAL RESOURCES *(Wetlands/floodplains, threatened or endangered species, etc.)*	☐	☑	☐	☐
13. CULTURAL RESOURCES *(Native American burial sites, archaeological, historical, etc.)*	☐	☑	☐	☐
14. GEOLOGY AND SOILS *(Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.)*	☐	☑	☐	☐
15. SOCIOECONOMIC *(Employment/population projections, school and local fiscal impacts, etc.)*	☐	☑	☐	☐
16. OTHER *(Potential impacts not addressed above.)*	☐	☑	☐	☐

SECTION III - ENVIRONMENTAL ANALYSIS DETERMINATION

17. ☐ PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) # _____ ; OR
☑ PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED.

18. REMARKS
An Environmental Assessment was prepared with a resulting Finding of No Significant Impact.

19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION *(Name and Grade)*	19a. SIGNATURE	19b. DATE
TIMOTHY P. CHRISTENSEN	Timothy P. Christensen	20130606

Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
JUN 2013		**00-00-2013 to 00-00-2013**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Environmental Assessment for Alternate Water Supply System, Joint Base Langley-Eustis	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **Whitman, Requardt & Associates, LLP,9030 Stony Point Parkway, Suite 220,Richmnond,VA,23235**	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			
unclassified	**unclassified**	**unclassified**	**Same as Report (SAR)**	**210**	

ENVIRONMENTAL ASSESSMENT

JOINT BASE LANGLEY-EUSTIS
Newport News, Virginia

ALTERNATE WATER SUPPLY SYSTEM

FINAL - June 2013

FINDING OF NO SIGNIFICANT IMPACT
CONSTRUCTION AND OPERATION OF AN ALTERNATE WATER SUPPLY SYSTEM AND BOOSTER STATION
JOINT BASE LANGLEY-EUSTIS, FORT EUSTIS
CITY OF NEWPORT NEWS, VIRGINIA

Pursuant to the Council on Environmental Quality Regulations (Title 40 of the Code of Federal Regulations [CFR] Parts 1500–1508) for implementing the procedural provisions of the National Environmental Policy Act (Title 42 of the United States Code 4321 et seq.) and 32 CFR Part 989 (Air Force Environmental Impact Analysis Process), Joint Base Langley-Eustis, Fort Eustis (JBLE-FE), conducted an Environmental Assessment (EA) of the potential environmental, cultural, transportation, and socioeconomic effects associated with the construction and operation of an alternate water supply system and booster station.

Proposed Action

Old Dominion Utility Service (ODUS) owns and operates the water and sanitary sewer facilities at JBLE-FE. The existing water distribution system consists of approximately 50 miles of pipe, a water booster pumping station and two elevated storage tanks. The base is currently fed through a single 14-inch water line, which extends from Warwick Boulevard down Washington Boulevard to the existing water booster station in Building 6. The current JBLE-FE water distribution system operates on the levels of two elevated tanks. These tanks are filled by a water booster station pumping from the lower pressure south zone of the Lee Hall Water Treatment Plant (WTP). Newport News Waterworks (NNWW) operates the Lee Hall WTP. Similar to the existing water system at JBLE-FE, the alternate water supply system would be fed by the Lee Hall WTP.

ODUS proposes to install a new water supply point (hereinafter called the "Proposed Action") for the Fort Eustis portion of JBLE. Construction of this project would include activities such as excavation, site grading, trenching and pipe installation. The Proposed Action includes the following design features: meter vault, backflow preventer, water booster station, Approximately 2,450 linear feet of buried 12" pipe, and crush and run maintenance access road; approximately 1,700 linear feet long and 12 feet wide. A secondary connection would provide redundant water service to account for potential future water outages, which would improve system reliability. In order to meet demands, construction shall be completed, with the alternate water supply system fully operational, no later than September 30, 2013.

Purpose and Need

There have been previous water outages on JBLE-FE due to a water main break and due to required maintenance on the Newport News water line. Using average demands and assuming full elevated storage tanks, the existing water system would remain operational for less than 24 hours. The purpose of the Proposed Action is to create a secondary water connection, thereby providing redundancy and improving system reliability during any future outages to the main system.

Alternatives Considered

For Proposed Actions that require the preparation of an EA, the CEQ regulations, NEPA, and Air Force guidance and policy require that appropriate alternatives for the Proposed Action be described and evaluated. A reasonable range of alternatives that meet the underlying purpose and need for the Proposed Action should be analyzed for their environmental impacts in order to support a fully informed decision. Prescribed by CEQ and Air Force regulations, the No Action Alternative serves as a baseline against which the impacts of the Proposed Action and alternatives can be evaluated. Under the No Action

Alternative, JBLE-FE would forgo the proposed alternate water supply system and would have limited operational time in the case of an outage in the existing system.

Two primary alternatives for the Proposed Action were identified and evaluated. Alternative 1, on Shellabarger Drive, was later divided into two options, 1A and 1B. Alternative 2 is in the Oakland Industrial Park. Prior to selecting the Preferred Alternative, these alternate locations were evaluated and Alternative 1A and 1B were eventually dismissed. Alternative 1A and 1B presented a number of obstacles in comparison with Alternative 2 (the Preferred Alternative) that included access issues, increased impacts to natural resources, design challenges and cost. A detailed analysis of each alternative and the reasons for its elimination are discussed in the body of this EA.

Factors Considered in Determining that No Environmental Impact Statement is Required

The EA, which is attached hereto and incorporated by reference into this Finding of No Significant Impact (FNSI), examines the potential effects of the Proposed Action and the No Action Alternative on resource areas and areas of environmental and socioeconomic concern: land use, aesthetic and visual resources, air quality, noise, geology and soils, water resources, biological resources, cultural resources, socioeconomics, environmental justice, transportation, utilities and hazardous materials. Implementing the Proposed Action would result in a combination of short and long-term minor adverse and beneficial effects. The Preferred Alternative is expected to disturb approximately 1.18 acres of land. Minor impacts to natural resources within the limits of the Proposed Action are expected as a result of constructing the Preferred Alternative. These include vegetation removal and impacts to wetlands. Additionally, the Preferred Alternative is expected to create short-term, minor, adverse impacts on air quality, noise, soils, and transportation, primarily associated with construction activities. Operational activities will produce few, if any, significant adverse effects. No impacts to rare, threatened or endangered species are anticipated. Additionally, no historic properties will be impacted within the project boundaries.

Mitigation measures will include the use of best management practices during and after construction to avoid and minimize adverse environmental effects. Construction activities would be covered under an approved plan for erosion and sediment control, using stormwater management and erosion control Best Management Practices required by Virginia Department of Conservation and Recreation (DCR). The project will adhere to any applicable federal, state, and local air regulations, such as those for the control of fugitive dust. Disturbed areas will be revegetated with native species and re-seeding will adhere to DCR requirements for sediment control.

Public Review

The draft EA and draft FNSI were available for public review and comment for 30 days, beginning upon the publication of notices of availability (NOA) in *The Daily Press* (Newport News, VA) on March 19, 2013, and March 20, 2013. Copies of the draft EA and draft FNSI were available for review and comments at Groninger Library BLDG 1313, Fort Eustis, VA 23604; Grissom Public Library, 366 DeShazor Drive, Newport News, VA 23606, and Christopher Newport University Library, 1 University Place Newport News, VA 23606, and online at http://www.peninsulawarrior.com. No public comments were received.

Coordination with federal and state agencies for the proposed project was initiated in January 2013 to solicit applicable comments related to the corresponding areas of jurisdiction and to obtain concurrence with the initial findings. Agencies contacted include the U.S. Fish and Wildlife Service (USFWS), U.S. Army Corps of Engineers (USACE), U.S. Environmental Protection Agency (EPA) Region III, U.S. Department of Agriculture Natural Resources Conservation Service, Newport News Department of Planning, the Virginia Department of Historic Resources (DHR) and the Virginia Department of

Environmental Quality (DEQ). Through its Environmental Impact Review process for federal projects, DEQ distributed scoping materials to appropriate state agencies. Owners of the private property on which the alternate water supply system would be located were also asked for comments. Agency responses are summarized as follows:

- Virginia Marine Resource Commission: Any jurisdictional impacts will be reviewed by VMRC during the Joint Permit Application process.
- Department of Environmental Quality: DEQ indicated that a Federal Consistency Determination is required per the Coastal Zone Management Act. Additionally, DEQ provided resource guidance information. In May 2013, DEQ concurred with the findings of the Federal Consistency Determination provided that construction activities are completed in accordance with appropriate enforceable local, state, and federal laws/regulations.
- Virginia Department of Historic Resources: DHR concurred with the Air Force determination that No Historic properties are located within the area of potential effect of the Proposed Action.
- Virginia Department of Health, Office of Drinking Water: Indicated that there are no apparent impacts and they have no additional scoping comments.
- U.S. Army Corp of Engineers: Indicated that when working near wetlands adhere to strict erosion and sediment control measures. In May 2013, the USACE indicated that no permit will be required from the Corps for the proposed work and noted that any permitting for impacts to the small offsite wetlands should be coordinated through DEQ and VMRC.
- U.S. Fish and Wildlife Service project review system - Information, Planning, and Conservation System (IPaC): no federally proposed or listed endangered or threatened species are known to exist within the limits of the Proposed Action.

Conclusion

I have reviewed the EA and considered the comments received, and find that there will be no significant impacts to the natural environment, to cultural resources, or to the human environment resulting from this Proposed Action to construct and operate an alternate water supply system and booster station for JBLE-FE. Based on the evaluation of the environmental consequences in this EA, an environmental impact statement is not necessary.

Date: 6 Sept 13

THOMAS R. WETHERINGTON, Colonel
Commander, 733 Mission Support Group

Table of Contents

LIST OF TABLES

LIST OF FIGURES

APPENDICES

Appendix A: AGENCY COORDINATION

Appendix B: CONCEPTUAL PLAN SET

Appendix C: RECORD OF NON-APPLICABILITY

Appendix D: WETLAND DELINEATION MEMO

Appendix E: FEDERAL CONSISTENCY DETERMINATION

Appendix F: U.S. FISH AND WILDLIFE PROJECT REVIEW PACKAGE

Appendix G: PUBLIC HEARING AFFIDAVIT

APPENDICES

Appendix A: AGENCY COORDINATION

Appendix B: CONCEPTUAL PLAN SET

Appendix C: RECORD OF NON-APPLICABILITY

Appendix D: WETLAND DELINEATION MEMO

Appendix E: FEDERAL CONSISTENCY DETERMINATION

Appendix F: U.S. FISH AND WILDLIFE PROJECT REVIEW PACKAGE

EXECUTIVE SUMMARY

INTRODUCTION

Pursuant to the National Environmental Policy Act (NEPA) of 1969, Federal agencies are required to consider the environmental consequences of their proposed actions. This Environmental Assessment (EA) has been prepared to evaluate potential environmental, cultural, transportation and socioeconomic effects associated with the proposed construction and operation of an alternate water supply system and booster station at Joint Base Langley-Eustis, Fort Eustis (hereinafter referred to as "JBLE-FE").

This EA documents the purpose and need, the alternatives developed, the site selection process and the analysis of potential environmental impacts considered to select a Preferred Alternative. Construction of the proposed project would begin once all studies and the design are complete and all permits are secured.

BACKGROUND AND SETTING

JBLE-FE is a joint military base aligned with Langley Air Force Base; the majority of military units are Army tenants. JBLE-FE was formed in 2010, when the Base Realignment and Closure Commission combined the two installations, (Langley Air Force Base and Fort Eustis). It is located in Newport News, Virginia, in the Tidewater Region. JBLE-FE employs over 12,000 military and civilian personnel.

PROPOSED ACTION

Old Dominion Utilities Service (ODUS) proposes to install a new water supply point (hereinafter called the "Proposed Action") for the Fort Eustis portion of JBLE. Construction of this project would include activities such as excavation, site grading, trenching and pipe installation.

The Proposed Action includes the following design features:

- Meter vault
- Backflow preventer
- Water booster station
- Approximately 2,450 linear feet of buried 12" pipe
- Crush and run maintenance access road; approximately 1,700 linear feet long and 12 feet wide

JBLE-FE has experienced water outages as a result of past water main breaks and during required maintenance on the connecting Newport News water main. Construction of the alternate water supply system is needed to meet the water demand for JBLE-FE. A secondary connection would provide redundant water service to account for potential future water outages, which would improve system reliability.

In order to meet demands, construction shall be completed, with the alternate water supply system fully operational, no later than September 30, 2013.

PURPOSE AND NEED

The purpose of the Proposed Action is to improve the reliability of the water supply system on JBLE-FE by providing a redundant water supply point for use in case of outages of the main system. Assuming average usage, full elevated storage tanks, and no alternate water source, future water outages would deplete the water supply at JBLE-FE in less than 24 hours.

ALTERNATIVES

The No Action Alternative, prescribed by the Council on Environmental Quality (CEQ), reflects the status quo and serves as a benchmark against which the other alternatives are evaluated. Under the No Action Alternative, JBLE-FE would forgo the proposed alternate water supply system and its related facilities.

Three alternatives were evaluated for the new alternate water supply system prior to selecting the alternative, which best met the purpose and need of the project (hereinafter referenced "Preferred Alternative"). Two of the options presented a number of obstacles in comparison with the Preferred Alternative, including access issues, increased impacts to natural resources, utility impacts, the need to repave the disturbed roadway and the potential for freezing. A detailed analysis of each alternative considered and the reasons for its elimination are discussed in the body of this EA.

The Preferred Alternative consists of 2,450 linear feet of buried 12-inch water main extending through a forested area on both JBLE-FE and adjacent private land. The 12-inch main would be tied into the existing 16-inch main on Enterprise Drive, which ties into a 30-inch main along Warwick Boulevard. This alternative presented the fewest adverse impacts to the surrounding environment and was the most feasible to construct. The Preferred Alternative is the shortest and least expensive of the alignments that were evaluated and it provides better access than the other options. It minimizes potential utility and wetland impacts and would not impact JBLE-FE traffic.

ENVIRONMENTAL CONSEQUENCES

This EA evaluates the potential short and long-term effects of the Proposed Action on land use, air quality, noise, aesthetics and visual resources, geology and soils, water resources, biological resources, cultural resources, socioeconomics, transportation, infrastructure and utilities, hazardous materials and environmental justice.

Implementation of the Proposed Action is expected to result in a combination of minor short and long-term adverse and beneficial effects to environmental resources and conditions. Table ES-1 summarizes the findings discussed in the body of this EA.

Table ES.1: Summary of Impacts

Resource	Proposed Action	No-Action
Land use	Minor Adverse Short-term Impacts	No Impacts
Air quality	Minor Adverse Short-term Impacts	No Impacts
Noise	Minor Adverse Short-term Impacts	No Impacts
Aesthetics and Visual Resources	Minor Adverse Short-term Impacts	No Impacts
Geology and Soils	Minor Adverse Short-term Impacts	No Impacts
Water Resources, including wetlands	Minor Adverse Long-term Impacts	No Impacts
Biological Resources	Minor Adverse Short- and Long-term Impacts	No Impacts
Cultural Resources	No Impacts	No Impacts
Socioeconomics	Minor Beneficial Short-term Impacts	No Impacts
Transportation	Minor Adverse Short-term Impacts	No Impacts
Solid Waste and Utilities	Minor Adverse Short-term Impacts	No Impacts
Hazardous Materials	No Impacts	No Impacts
Environmental Justice	No Impacts	No Impacts

1.0 PURPOSE, NEED, AND SCOPE

1.1 Introduction and Background

Joint Base Langley-Eustis, Fort Eustis (JBLE-FE) is a joint military base aligned with Langley Air Force Base; the majority of military units are Army tenants. JBLE-FE was formed in 2010, when the Base Realignment and Closure Commission combined Langley Air Force Base and Fort Eustis. JBLE-FE is bound by the James River to the west and the Warwick River to the east (see **Figure 1**). It is contiguous to Newport News, Virginia, and employs over 12,000 military and civilian personnel.

Old Dominion Utility Service (ODUS) owns and operates the water and sanitary sewer facilities at JBLE-FE. The existing water distribution system consists of approximately 50 miles of pipe, a water booster pumping station and two elevated storage tanks. The base is currently fed through a single 14-inch water line which extends from Warwick Boulevard down Washington Boulevard to the existing water booster station in Building 6.

The current JBLE-FE water distribution system operates on the levels of two elevated tanks. These tanks are filled by a water booster station pumping from the lower pressure south zone of the Lee Hall Water Treatment Plant (WTP). The typical discharge pressure of the water booster pump station is between 75 and 80 pounds per square inch (psi). The proposed alternate water supply system would provide at least this much pressure in order to fill the tanks.

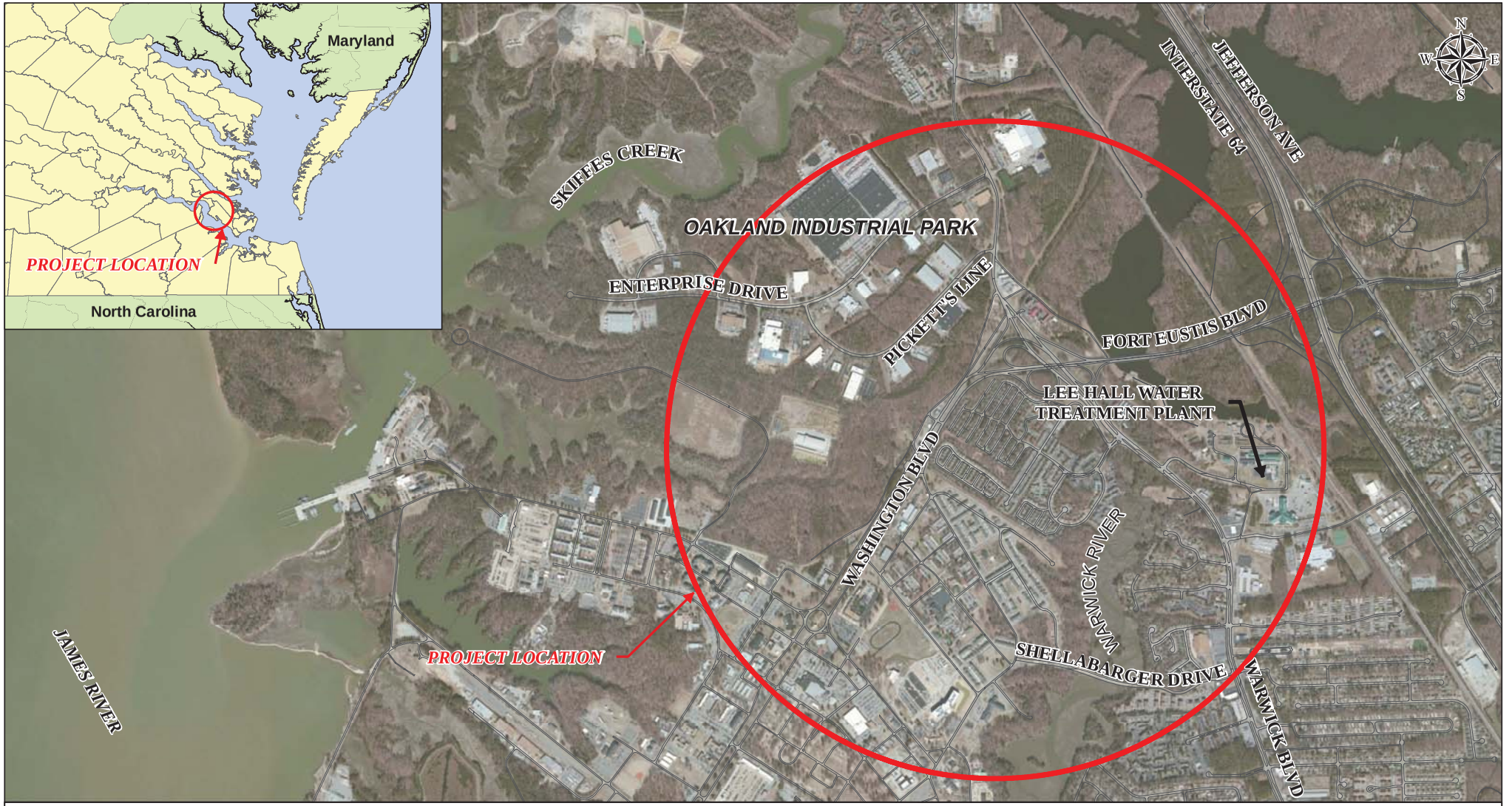
Newport News Waterworks (NNWW) operates the Lee Hall WTP, located approximately 0.7 miles northeast of Alternative 1 and 1.5 miles southeast of Alternative 2. Similar to the existing water system at JBLE-FE, the alternate water supply system would be fed by the Lee Hall WTP.

1.2 Purpose and Need

There have been previous water outages on JBLE-FE due to a water main break and required maintenance on the Newport News water line. Using average demands and assuming full elevated storage tanks, the existing water system would remain operational for less than 24 hours. The purpose of the Proposed Action is to create a secondary water connection, thereby providing redundancy and improving system reliability during any future outages to the main system.

1.3 Scope of the Environmental Assessment

In accordance with the National Environmental Policy Act (NEPA) of 1969 and regulations issued by the Council on Environmental Quality (CEQ), and in accordance with the Air Force Environmental Impact Analysis Process (32 CFR Part 989), this Environmental Assessment (EA) identifies, documents and evaluates the environmental effects likely to occur as a result of the Proposed Action. An interdisciplinary team of scientists, engineers, planners, archaeologists and military technicians reviewed



Joint Base Langley-Eustis Alternate Water Supply Study

1,500 750 0 1,500 3,000 Feet

Project Location

Figure 1

the findings discussed in this document, which acts to inform Federal agencies and the public of any direct environmental consequences likely to occur as a result of implementing the Proposed Action. This document also includes the development of alternatives, analyses of any secondary (or indirect) effects and a discussion of the cumulative effects of other known or foreseeable actions.

The environmental effects include those related to construction and operation of the Proposed Action. In considering environmental concerns, the US Air Force (USAF) is guided by relevant state and federal statutes as well as by Executive Orders (EO) that establish standards and provide guidance on environmental and natural resources management and planning.

1.4 Public Involvement and Agency Coordination

The Air Force encourages public participation in the NEPA process. Documents about this Proposed Action are made available to agencies, organizations, and members of the general public with an interest in the Proposed Action so that they may review and comment on decisions as they are made.

Coordination with Federal and State agencies to solicit comments related to their corresponding areas of jurisdiction, and to obtain concurrence with the initial findings for the Proposed Action, was initiated in January 2013. Agencies contacted include the US Fish and Wildlife Service (USFWS), US Army Corps of Engineers (USACE), US Environmental Protection Agency (EPA), US Department of Agriculture Natural Resources Conservation Service, Newport News Department of Planning, NNWW, the Virginia Department of Historic Resources and the Virginia Department of Environmental Quality (DEQ). Through its Environmental Impact Review process for federal projects, DEQ distributed scoping materials to appropriate state agencies. High Liner Foods Incorporated, owners of the private property on which a portion of the alternate water supply system would be located were also coordinated with. Copies of the coordination letters and mailing list, along with agency responses and public comments, are located in **Appendix A**.

Public participation with respect to this EA is guided by 32 CFR Part 989. If the EA concludes that the Proposed Action would not result in significant environmental effects, the Air Force may issue a draft Finding of No Significant Impact (FNSI). The EA and draft FNSI were made available to the public for review and comment for 30 days beginning upon the publication of the notice of availability in the *Daily Press* (Newport News, VA) on March 19, 2013. At the end of the 30-day public review period, the Air Force will consider any comment submitted on the Proposed Action. As appropriate, they may then choose to execute the FNSI and continue with implementation of the Proposed Action. If it is determined that the implementation of the Proposed Action would have significant impacts, the Air Force would either publish a notice of intent to prepare an environmental impact statement in the *Federal Register*, commit to mitigation actions to reduce impacts below levels of significance, or cancel the action.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 Proposed Action

The Proposed Action consists of the construction of a 12-inch water main on JBLE-FE. It would include the following design features:

- Meter vault
- Backflow preventer
- Water booster station
- Approximately 2,450 linear feet of buried 12-inch pipe
- Crush and run access roadway for maintenance; approximately 1,700 feet long and 12 feet wide

The 12-inch water main is needed to provide a redundant water supply point in case of an outage in the existing system. With normal water demand, and assuming full water tanks, the existing system would remain operational for less than 24 hours in the case of an outage. Previous outages have occurred as a result of water main breaks and due to scheduled maintenance on the Newport News system.

Hydraulic modeling was used to evaluate pressures in an elevated storage tank for four different scenarios. The model evaluated the existing system, the Preferred Alternative connections with and without a Pressure Reducing Valve (PRV)/Control Valve, and the Preferred Alternative connection with a PRV, Booster Station and Control Valve.

During the scenario without a PRV/Control Valve, the elevated tank completely filled and would not drain. This caused system pressures to increase well above the 75 psi threshold for large parts of the system. The system high pressure was 91 psi. If the tanks are unable to cycle, water age would become an issue and increased system pressures could lead to the development of leaks in older sections of pipes.

The application of a PRV is a common method of achieving a steady pressure feed into a pipe network that operates at a lower pressure than its supply system. The desire of ODUS to continue utilizing the elevated tanks to supply the required demand means that these pressures would have to be regulated.

With the PRV set at 77.5 psi (to match the pressure provided by the booster station), the elevated tank is able to fill. However, it takes an additional 3.5 hrs. The increased cycle time would present an issue for water age and cause the system's flushing hydrants to operate more frequently. A water booster station with pumps able to match existing tank cycle times would prevent any additional maintenance and operations work as a result of the new connection.

2.2 No Action Alternative

The No Action Alternative is the continuation of existing conditions without implementation of the Proposed Action. Prescribed by CEQ and Air Force regulations, the No Action Alternative serves as a baseline against which the impacts of the Proposed Action and alternatives can be evaluated. Under the

No Action Alternative, JBLE-FE would forgo the proposed alternate water supply system and would have limited operational time in the case of an outage in the existing system.

2.3 Alternative Sites Considered

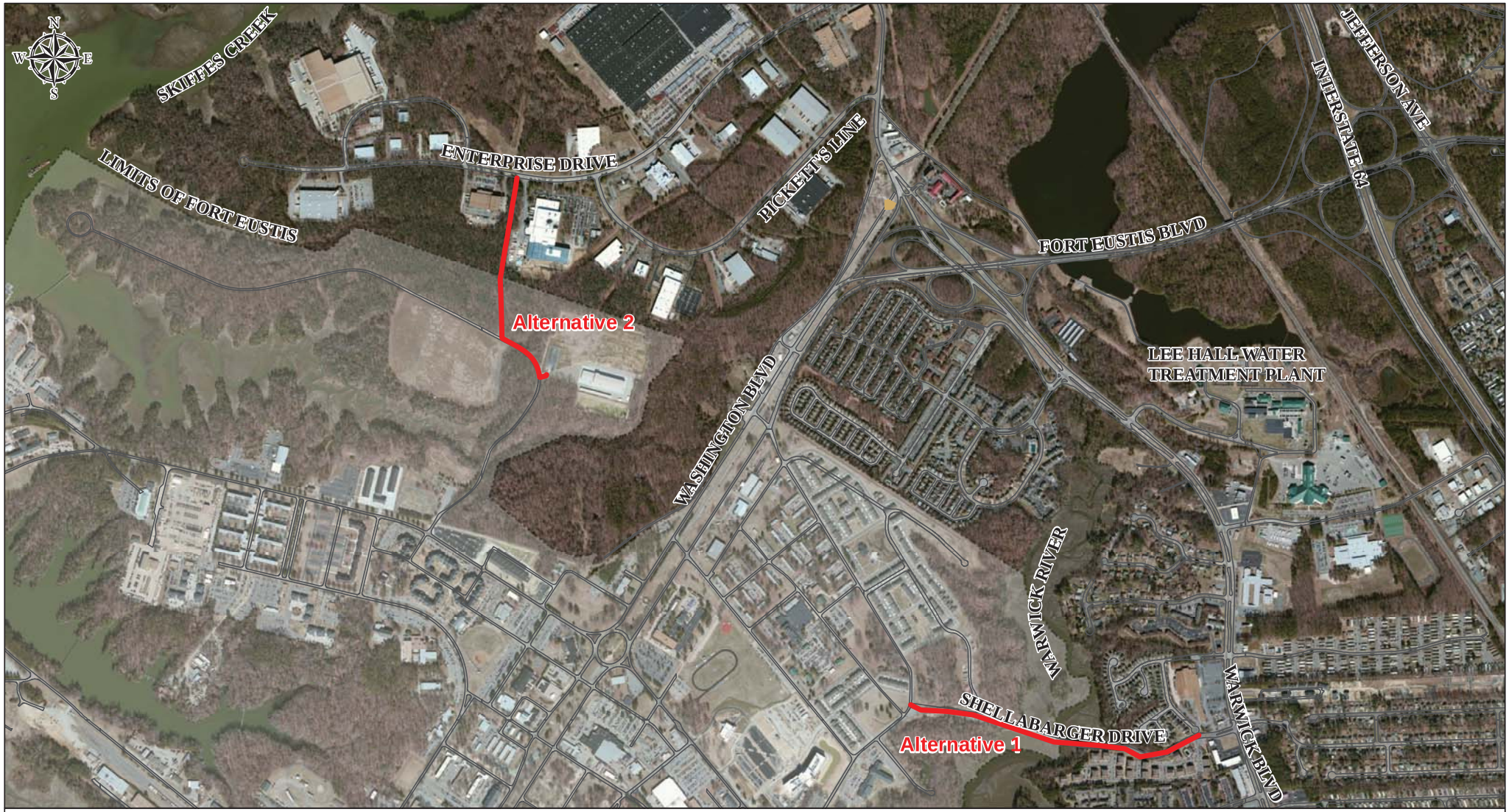
For Proposed Actions that require the preparation of an EA, the CEQ regulations, NEPA, and Air Force guidance and policy require that appropriate alternatives for the Proposed Action be described and evaluated. A reasonable range of alternatives that meet the underlying purpose and need for the Proposed Action should be analyzed for their environmental impacts in order to support a fully informed decision. An EA must include an evaluation of the No Action Alternative as a reference for the comparison of potential environmental impacts associated with the Proposed Action. Additionally, the EA should identify alternatives eliminated from detailed analysis and indicate the reasons for their elimination.

Two primary alternatives for the Proposed Action were identified and evaluated. Alternative 1, on Shellabarger Drive, was later divided into two options. Alternative 2 is in the Oakland Industrial Park.

Shellabarger Drive (Alternative 1):
In 2005, the USACE designed a second entrance to JBLE-FE, crossing the Warwick River along Shellabarger Drive. The project extended Shellabarger drive 3,700 feet from Warwick Boulevard to Madison Avenue. The 1,100 linear foot bridge across the Warwick River was designed and built with 14-inch diameter openings in each support to accommodate a waterline. This alignment would tie into the existing 12-inch main in Shellabarger Drive and extend 3,650 linear feet to tie into the existing JBLE-FE System at the corner of Madison Avenue and Lincoln Street. Due to the low system pressures, a water booster station would be required for this alternative. The alignment for this alternative is depicted on **Figure 2**. The existing 8-inch main in Madison Avenue would be replaced with a 12-inch main to improve flow to the elevated storage tanks.

Alternative 1 has been divided into two options. Alternative 1A would attach the pipe to the existing bridge. Alternative 1B would utilize a horizontal directional drill (HDD) to cross the Warwick River. The use of a HDD to cross the river would avoid disturbing the wetlands adjacent to the river.

Oakland Industrial Park (Alternative 2):
Oakland Industrial Park is located along Warwick Boulevard, north of the primary entrance to JBLE-FE. The Industrial Park's water system consists of a primary 16-inch main extending down Enterprise Drive, with a secondary 12-inch loop along Picketts Line. Both the 16-inch and 12-inch mains are tied into the 30-inch main along Warwick Boulevard. The 30-inch main provides water at a higher pressure than the majority of the Newport News system in order to service multiple customers in James City County. The proposed alignment would tie into the existing 16-inch main in Enterprise Drive. It would then extend 1,100 feet to the south, along the boundary between the High Liner Seafood property (190 Enterprise Drive) and the Newport News Industrial Corporation (NNI) property (182 Enterprise Drive), heading toward the JBLE-FE property line. On JBLE-FE, the water main would continue for approximately 660 feet south to an unnamed access drive and then turn east toward the Tactical Equipment Maintenance Facility (TEMF). The proposed alignment would extend approximately 690 feet east along the unnamed



Joint Base Langley-Eustis Alternate Water Supply Study

1,000 500 0 1,000 2,000 Feet	Alternatives Studied	Figure 2

access road and connect into two existing 8-inch mains currently serving the Tactical Equipment Maintenance Facility (TEMF). Alternative 2 is shown on **Figure 2**.

Both Alternatives would include a meter vault and a back flow preventer.

2.4 Site Selection Process

The site selection process attempted to identify the most feasible, cost effective, minimally invasive, and least environmentally-sensitive location for the design features described above. The following are the site selection criteria used to evaluate the feasibility of each alternative location:

Impacts to the Public

- Considered the extent of disruption to the public during and after construction.
- Routes within easements would be preferred to those in roadway rights-of-way, because there would be fewer public impacts.

Easements

- Considered the number and size of easements that would be required.
- Routes with fewer easements would be preferred to those with more.

Operations and Maintenance (O&M)

- Considered access for operations and maintenance after construction.
- Alignments that allow for ease of access would be preferred to those in remote easement areas.
- Routes in roadways with lower speed limits and lower daily traffic counts would be preferred to those with higher speed limits and higher daily traffic counts.

Environmental Impacts

- Considered the effects of the project on the natural environment.
- Alignments that minimize environmental impacts would be preferred to those in more environmentally sensitive areas.
- Routes that minimize permitting and mitigation requirements would be preferred to those with greater requirements.

Constructability

- Considered factors that affect construction rates and costs, such as access, clearing, wetlands, traffic control, drainage crossings and use of easements versus putting pipes in pavement.
- Routes with fewer impediments to construction would be preferred to those with more.
- Routes with lower costs would be preferred to those with higher costs.

Utility Conflicts

- Considered impacts due to conflicts with existing and future utilities.
- Routes with fewer potential utility conflicts would be preferred to those with more.

Costs

- Considered the estimated cost of construction.
- Cost estimates were on a linear foot basis, not total cost.

Each Alternative was assigned a grade of 1 to 5 for each evaluation factor, with 5 being the best and 1 being the worst. While this scoring system is subjective, it was useful in providing a quantitative comparison between the alternatives. **Table 2.1** summarizes the scores for each alternative.

Table 2.1: Alternative Decision Matrix

Criterion	Alternative		
	1A	1B	2
Public/Traffic Impacts	3	3	5
Property Impacts/ Easements	5	5	4
Ease of O&M	5	3	5
Environmental Impacts	2	3	4
Constructability	3	4	5
Utility Conflicts	3	3	5
Cost	3	3	4
Total Score	**24**	**24**	**32**

Alternative 2 received the highest score and is the least expensive alternative due to its shorter length and lack of a river crossing. Based on the results of the Alternative Decision Matrix, Alternative 2, in the Oakland Industrial Park, was selected as the Preferred Alternative. See **Figure 3**. A Conceptual Plan Set, including maps of the project site and piping system, are included in **Appendix B**.

Joint Base Langley-Eustis Alternate Water Supply Study

300 150 0 300 600 Feet

Proposed Action

Figure 3

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Introduction

The information provided in this section of the EA serves as a point of reference for understanding potential impacts resulting from the construction and operation of the proposed new infrastructure in the project area. The project study area is defined as an area approximately 50 feet on either side of the centerline of the Proposed Action. The Preferred Alternative would span approximately 2,450 feet, with approximately 1,350 feet on JBLE-FE, and the remaining 1,100 feet on adjacent private property owned by High Liner Foods Incorporated.

Table 3.1 provides a summary of the potential environmental changes associated with both the Preferred and No Action alternatives. Under the No Action Alternative, JBLE-FE would forgo construction of the proposed alternate water supply system and there would be no changes to any environmental assets. The affected environment and anticipated impacts associated with the Proposed Action are further detailed in the sections that follow.

Table 3.1: Summary of Potential Environmental and Socioeconomic Consequences

Resource	Preferred Alternative	No-Action
Land use	Minor Adverse Short-term impacts	No Impacts
Air quality	Minor Adverse Short- term Impacts	No Impacts
Noise	Minor Adverse Short-term Impacts	No Impacts
Aesthetics and Visual Resources	Minor Adverse Short-term Impacts	No Impacts
Geology and Soils	Minor Adverse Short-term Impacts	No Impacts
Wetlands	Minor Adverse Long-term Impacts	No Impacts
Water Resources	No Impacts	No Impacts
Biological Resources	Minor Adverse Short-term and Long-term Impacts	No Impacts
Cultural Resources	No Impacts	No Impacts
Socioeconomics	Minor Beneficial Short-term Impacts	No Impacts
Transportation	Minor Adverse Short-term Impacts	No Impacts
Solid Waste and Utilities	Minor Adverse Short-term Impacts	No Impacts
Hazardous Materials	No Impacts	No Impacts
Environmental Justice	No Impacts	No Impacts

3.2 Land Use

3.2.1 Affected Environment

This section addresses existing and proposed land use patterns within JBLE-FE and the surrounding vicinity, along with the areas associated with the Preferred Alternative. Current land use at JBLE-FE

includes military training (dominant land use), housing, commercial ventures, administrative facilities, recreational areas and open space. Similar to other military installations, JBLE-FE has distinct zones based on dominant land use. It is surrounded by residential areas, commercial centers, light industrial use and open space. According to Newport News' *Framework for the Future 2030*[1], the Proposed Action would be in an area zoned as "Heavy Industrial" on the private land along the south side of Enterprise Drive and as "Government" on the JBLE-FE property south of the private parcels. **Table 3.2** presents a summary of total acres of land disturbance for each alternative evaluated:

Table 3.2: Summary of Land Disturbance (acres)

Design Feature	Alternative		
	No Action	Preferred	
		Private Property	JBLE-FE Property
Booster Station	0	0	0.14
Alternate Water Supply Line	0	0.20	0.35
Maintenance Access Road	0	0.30	0.19
Total	***0***	***1.18***	

In accordance with the Farmland Protection Policy Act, a Farmland Conversion Impact Rating Form was completed for the Proposed Action. This form is intended to evaluate impacts of proposed projects on Prime Farmland and Statewide Important or Local Important Farmland. One of the primary uses of land at Fort Eustis is for military training. The Proposed Action encompasses the installation of the water main and access road in Training Area 2 of JBLE-FE. This training area consists of 77 acres and is used by military units to conduct tactical bivouac, land navigation, small unit tactics and vehicle access training.

3.2.2 Environmental Consequences

Impacts to land use as a result of implementing the Proposed Action were evaluated based on potential incompatibility with existing, proposed, or future land use designations, as well as conflicts with zoning, adjacent land use and other planning regulations. The Preferred Alternative would require permanent easements on approximately 0.50 acres of private property, all classified as 'Heavy Industrial' land use. Based on the current use of land that would be impacted by the Proposed Action, there would be no zoning or development conflicts. Furthermore, the Preferred Alternative project area is consistent with the existing land use designation. **Table 3.3** summarizes the permanent easements associated with each alternative.

[1] Framework for the Future 2030 is a planning document utilized by the City of Newport News, neither this document nor the City of Newport News set the land use type for JBLE-FE.

Table 3.3: Alternate Water Supply System Permanent Easements (acres)

Feature	No Action Alternative		Preferred Alternative	
	Private Land	JBLE-FE	Private Land	JBLE-FE
Alternate Water Supply Line	0	0	0.20	0
Maintenance Access Road	0	0	0.30	0
Total Easements Required	***0***	**0**	***0.50***	***0***

According to the Natural Resources Conservation Service, there is no Prime Farmland, Statewide Important Farmland, or Local Important Farmland in the study area. See **Appendix A**. Temporary closure of Training Area 2 to training activities would occur during construction. The expected duration of this impact would be 30 days. Additionally, once the project is completed, the pipe would be buried; the access road would not impact future training activities since it is only intended to be used for the operations and maintenance of the Proposed Action and not for entrance into JBLE-FE. The total impacted area out of the 77 acres within Training Area 2 would be approximately 0.32 acres.

3.3 Air Quality

3.3.1 Affected Environment

Air quality is dependent upon a combination of factors, including the type and amount of pollutants emitted, the size and topography of the air basin and prevailing meteorological conditions. The significance of the pollutant concentration is determined by comparing an area's conditions with federal and state ambient air quality standards. Air quality is administered by the Clean Air Act (CAA) of 1972 (42 USC 85) and is regulated under 40 CFR Part 50, which requires EPA to establish primary and secondary National Ambient Air Quality Standards (NAAQS) for the protection of public health and the environment. NAAQS set the acceptable concentration levels for six criteria area air pollutants: carbon monoxide (CO), sulfur dioxide (SO_2), ozone (O_3), nitrogen dioxide (NO_2), particulate matter (PM) less than 10 microns (PM_{10}), PM less than 2.5 microns ($PM_{2.5}$), and lead (Pb). Pollutant emissions and air quality in Virginia are monitored by DEQ and EPA Region 3. Where criteria pollutants exceed established NAAQS, areas are designated as nonattainment or maintenance zones[2] and a plan[3] must be implemented to improve the overall existing air quality in the designated Air Quality Control Regions (AQCR).

Federal actions occurring in nonattainment areas or maintenance areas require an analysis to determine whether or not the proposed action would be consistent with the overall air quality attainment goals established where the proposed project would occur. A general conformity determination is required to show that the proposed project would not exceed the designated threshold (*de minimis*) levels for criteria pollutants with established NAAQS goals.

[2] Air Quality Control Regions and their respective air quality attainment status are listed in 40 CFR §81.
[3] Typically a State Implementation Plan (SIP), 40 CFR §51.

JBLE-FE is located in the Hampton Roads Intrastate AQCR, as designated in 40 CFR 81.93. According to 40 CFR 81.321, the Hampton Roads Intrastate AQCR is classified as in attainment for all criteria pollutants. However, based on 1997 standards, it was designated as a nonattainment maintenance area for 8-hour ozone. After several consecutive years of improvements, the Hampton Roads Intrastate AQCR was determined to be in attainment for 8-hour ozone in June 2007. Since then, Hampton Roads has been designated as a maintenance area for 8-hour ozone.

3.3.2 Environmental Consequences

Air quality impacts resulting from the proposed project would be limited to the intermittent use of a backup generator for the pump station as well as pollutant emissions associated with construction activities, including airborne dust from ground disturbance, operations, combustion byproducts from construction equipment and worker travel during construction. The amount of emissions generated during the construction and subsequent operation of the alternative water supply would be minor and would not substantially affect regional air quality in or around Newport News and the Hampton Roads Intrastate AQCR.

Due to its location within the Hampton Roads Intrastate AQCR, the study area is in attainment for all area criteria pollutants and is in a designated maintenance area for 8-hour ozone. Therefore, with the exception of ozone emissions, these pollutants are not subject to a review of the project's conformity with the CAA or any established State Implementation Plans (SIP) (see **Appendix C**). An analysis of the potential for ozone emissions has been conducted and is summarized in **Table 3.4**. Because ozone forms from other emissions, the analysis focuses on ozone precursors, including volatile organic compounds (VOCs), sulfur oxides (SOx), and nitrogen oxides (NOx).

Table 3.4: Comparison of Construction and Operation Emissions to GeneralConformity Rule *De Minimis* Thresholds

Activity	Emissions (tons/year)		
	VOCs	SOx	NOx
2013 Construction Emissions	0.0085	.0008	0.545
Annual Operation Emissions	0	0	0
De Minimis Thresholds[1]	50	100	100
Threshold Exceeded?	**No**	**No**	**No**

[1]EPA threshold for maintenance areas (40 CRF 93§153).

The analysis concludes that the proposed project would remain below the EPA's *de minimis* threshold for an 8-hour ozone maintenance area and would be consistent with the overall air quality attainment goals established for the proposed project study area.

3.4 Noise

3.4.1 Affected Environment

Noise is defined as unwanted sound that interferes with normal activities in a way that reduces the quality of the environment or is otherwise intrusive. Sounds can be intermittent or continuous. The two primary types of sound sources are stationary and transient. Stationary sources are immobile sources usually associated with a specific location, such as the noise generated at a construction site. Transient sound sources, such as vehicles or aircraft, move through the area. The loudness of sound as heard by the human ear is measured on the A-weighted decibel (dBA) scale. Examples can be found in **Table 3.5.**

Table 3.5: Common Noise Levels

Source	Decibel Level	Exposure Concern
Soft Whisper	30	Normal, safe levels
Average Home	50	
Conversational Speech	65	
Highway Traffic	75	May affect hearing in some individuals
Average Factory	80-90	
Automobile Horn	120	
Jet Plane	140	Noises at or over 140 dBA may cause pain
Gunshot Blast	140	

Source: EPA Pamphlet, "Noise and Your Hearing," 1986.

3.4.2 Environmental Consequences

Minor short-term adverse noise impacts are expected in the Project Area. Short-term increases in noise may result from the delivery and use of construction equipment. **Table 3.6** provides a representation of noise levels associated with new construction. With multiple pieces of equipment operating concurrently, noise levels can be relatively high during daytime periods at locations within 400 to 800 feet of active construction sites. Limiting construction activities to normal working hours and employing noise-control methods to the greatest extent possible would mitigate noise impacts during the construction phase.

Table 3.6: Typical Construction Equipment Noise Levels

Type of Equipment	dBA (at 50 feet)
Bulldozer	80
Backhoe/Bobcat	72-93
Jack hammer	81-98
Crane	75-77
Pick-up truck	83-94
Dump truck	83-94

No long-term increases in the overall noise environment are anticipated from implementation of the Proposed Action.

3.5 Aesthetics and Visual Resources

3.5.1 Affected Environment

Visual resources include the natural and man-made features that give a location its aesthetic qualities. These features form the overall impression a viewer obtains of an area, or its landscape character.

The Proposed Action is located in a mature mixed hardwood forest. The portion that is on private land is located near the boundary between two industrial facilities. Approximately half of the portion that is on JBLE-FE is adjacent to an unpaved access road. The remainder is within the forest.

3.5.2 Environmental Consequences

The proposed pipe would be concealed entirely underground and would cause only temporary, minor visual impacts during the construction process. The access road would be 12 feet wide, spanning the length of the project. While the road itself would be a new visual element, the surrounding forest would be left intact, largely hiding the road from view. The proposed water booster station would be adjacent to the newly-constructed Tactical Equipment Maintenance Facility (TEMF), and would not change the visual character of the area. See **Figure 3**.

3.6 Geology and Soils

Geology and soils are those aspects of the natural environment related to the earth. Some features include the presence/availability of mineral resources, soil condition and capabilities, potential for natural hazards, topography, physiology and geologic units and their structure.

3.6.1 Affected Environment

JBLE-FE lies within the Atlantic Coastal Plain Physiographic province. The Coastal Plain is underlain by a thick wedge of sediments that increases in thickness from the fall line to the continental shelf. These sediments rest on an eroded surface of Precambrian to Cenozoic rock. Sediments in the study area are from the Quaternary era.

The topography around JBLE-FE is generally flat, with approximately 60 feet of topographic relief. The greatest slopes occur along stream corridors. The study area is approximately 30 feet above sea level and the topography is flat.

The majority of the land in the project area is suitable for building; it is primarily mapped as Chickahominy-Urban land complex (8), Newflat-Urban land complex (17), and Peawick-Urban land complex (19) soil. Each of these soils is prevalent in urban areas, and each has silt loam or loam texture in the upper 6 inches. Deeper layers consist of clay, silty clay, or silty clay loam. None of these soils are classified as Prime Farmland soils.

3.6.2 Environmental Consequences

Minor short-term adverse effects on soils are expected with implementation of the Proposed Action. Installation of the pipe and construction of the maintenance access road and water booster station would involve the removal of vegetation and disturbance of soils to the depth[4] required for installation or construction. A Virginia Stormwater Management Program Permit would be obtained from the Virginia Department of Conservation and Recreation (DCR) for the Proposed Action. This permit would cover erosion and sediment control, stormwater management, and stormwater pollution prevention. Best management practices (BMPs) would be incorporated and maintained as part of the Proposed Action. BMPs at construction sites typically consist of various erosion and sediment control measures. Temporary measures such as silt fences or straw bales may be placed around the perimeter to control erosion until pipe installation and construction of the access road and water booster station are complete, and the soil has been stabilized.

Disturbed areas would be fully stabilized and re-vegetated with non-invasive grasses following construction activities. Re-seeding will adhere to DCR requirements for sediment control. No adverse effects are expected to impact site specific geology or topography as a result of implementing the Proposed Action.

3.7 Water Resources

This section describes the existing water resources that may be impacted as a result of implementing the Proposed Action, including strategies to avoid and minimize those impacts.

3.7.1 Affected Environment

Surface Water

JBLE-FE is located in the Lower James River drainage basin (Hydrologic Unit Code 02080206). The James River drains into the Chesapeake Bay, which drains into the Atlantic Ocean. There are ten named waterways on or bordering JBLE-FE, along with numerous intermittent channels. Bailey Creek flows into Skiffes Creek, which flows into the James River. Jail Creek, Morrisons Creek, Blows Creek, and Fort Creek also discharge into the James River. Milstead Creek, Island Creek, and Butlers Gut connect the Warwick River to the James River. JBLE-FE contains approximately 21.6 miles of open tidal shoreline along the James and Warwick Rivers and Skiffes Creek.

In November 2012 a field survey was conducted on the private property within the limits of the Proposed Action. The survey included a search for intermittent or perennial streams, but none were identified within or immediately adjacent to the Proposed Action. However, there is a perennial stream immediately adjacent to the Proposed Action within Training Area 2. The perennial stream runs beside and under (through a culvert system) the Proposed Action's route along the main Training Area 2 Maneuver Trail.

[4] Typical depth of installation is 3 ft of cover with a 1 ft pipe and 6 inches of stone bedding (about 5 ft). Pipeline and booster station installation does not exceed 8 ft.

Groundwater

Potable water in the study area is purchased from NNWW. The primary sources are the Chickahominy River and six deep wells (between 505 and 1,131 feet) in the Lee Hall area. The wells draw brackish water from the Potomac Aquifer. The Chickahominy River has a relatively high susceptibility to contamination, but the wells have low susceptibility. NNWW's water system complies with standards in the *Safe Drinking Water Act* (SDWA) and with the Commonwealth of Virginia's standards, which mirror those of the SDWA.

Wetlands

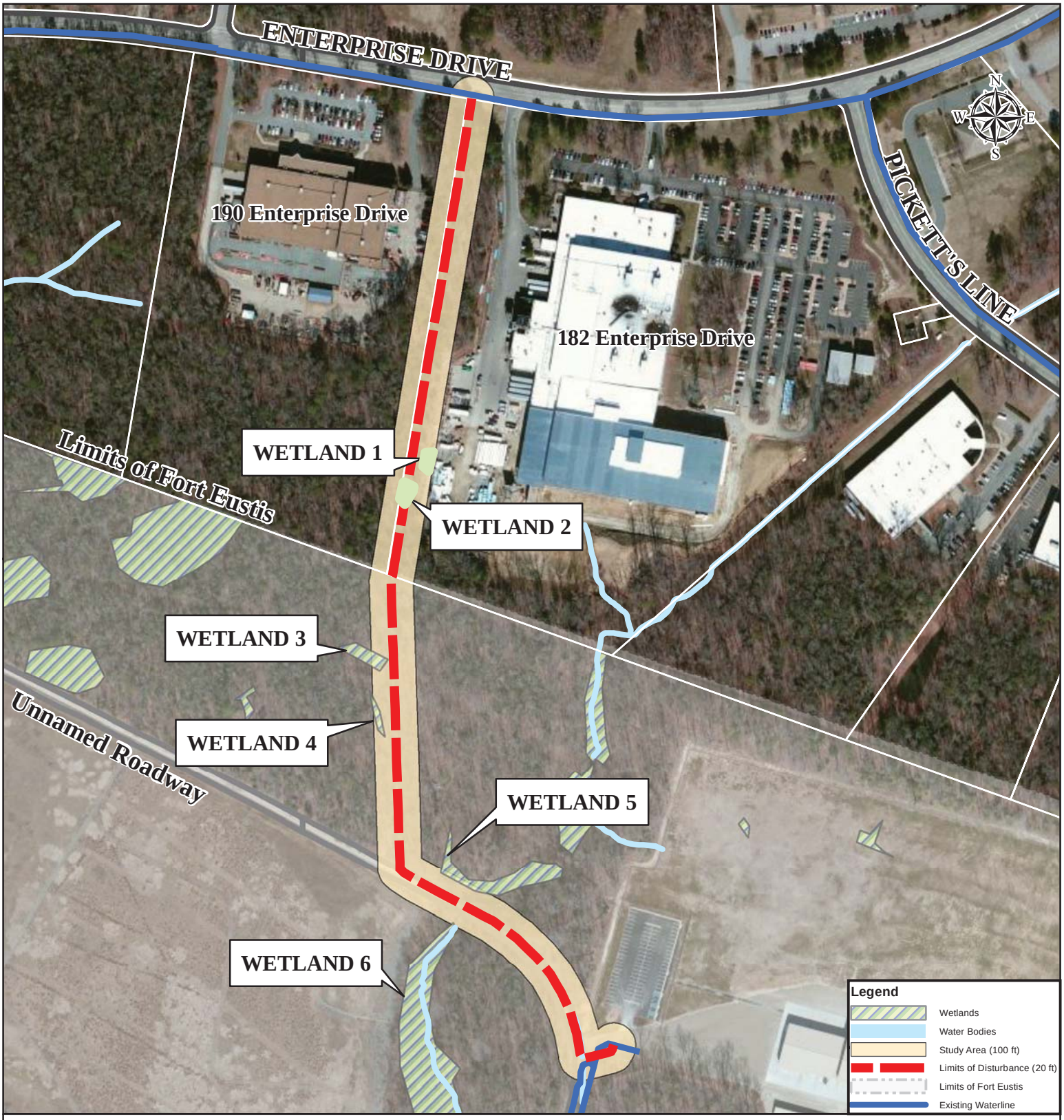
JBLE-FE has approximately 3,000 acres of wetland resources across the base. Many of these wetlands are situated in the floodplains of the ten named waterways on the installation. Nearly 100% of the installation has been delineated by the US Army Corps of Engineers Norfolk District excluding most of the impact area[5] which is not associated with the Proposed Action. USACE confirmation for delineations performed on JBLE-FE was originally received in September 2008 with additional delineation work completed in 2012. The wetlands data for the portion of the proposed action on Fort Eustis property remains valid.

Information concerning the potential nature and extent of wetlands within and adjacent to the Proposed Action was obtained by performing routine wetlands delineations of the study area, using the USACE's 1987 *Wetlands Delineation Manual*. The manual's routine on-site determination method was used. Wetland delineations involve an assessment of existing conditions, an inventory of the dominant vegetative species, an assessment of the hydrological influences of an area and an evaluation of the soil profile.

In November 2012, a wetland delineation was performed on the privately-owned property in the study area, subject to regulation under Section 404 of the Clean Water Act (CWA). The USACE has provided several regional supplements for the 1987 *Wetlands Delineation Manual*, and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0)* was used in this delineation. Results of the delineation are summarized in a December 2012 memorandum see **Appendix D**. The USACE preformed a site confirmation for the wetland delineation on private property on May 1, 2013. See **Appendix A** for USACE field determination coordination letter.

Two wetlands were identified on the private land within the limits of the Proposed Action. Both were Palustrine Emergent (PEM), with the vegetation dominated by cattails (*Typha latifolia*), soft rush (*Juncus effusus*), and woolgrass (*Scirpus cyperinus*). Four Palustrine Forested (PFO) wetlands were found on the JBLE-FE land within or near the limits of the Proposed Action. The dominant wetland vegetation on this part of the base includes cherrybark oak (*Quercus pagoda*), green ash (*Fraxinus pennsylvanica*), chain

[5] The Munitions and Explosives of Concern Hazard Assessment (MEC HA) defines a target area as "Areas at which munitions fire was directed." Those areas within the designated range boundaries which could be used as a target area or which could reasonably be used as a munitions fire area. With the exception of the range safety fans all areas within the designated range limit would be considered impact areas."



Joint Base Langley-Eustis Alternate Water Supply Study

0 150 300 600 Feet

Environmental Resources

Figure 4

fern (*Woodwardia* spp.), and soft rush. No impacts to wetlands on the installation are expected based on avoidance. Wetlands located within or near the limits of the Proposed Action are shown on **Figure 4**.

Floodplains

EO 11988, *Floodplain Management*, requires federal agencies to consider the risks and potential impacts of locating projects within floodplains. Floodplains are typically described as areas likely to be inundated by a particular flood. For example an area that has a one percent chance of flooding in a one-year span is in the 500-year floodplain.

The 1986 Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map that includes the study area shows that the Proposed Action would be located in Flood Zone C. This zone is subject to infrequent flooding, with floods occurring, on average, less than once every 500 years. FEMA does not have any regulatory requirements for construction in Flood Zone C because of the low flood risk.

Coastal Zone

The study area is entirely within Virginia's Coastal Zone Management (CZM) Program area, which includes the Chesapeake Bay. Established by an EO, the CZM Program is a network of state laws and policies designed to protect coastal and marine estuaries. DEQ regulates activities proposed within Virginia's CZM area through federal consistency requirements. Additionally, EO 13508 "recognizes the Chesapeake Bay as a national treasure and calls on the federal government to lead a renewed effort to restore and protect the nation's largest estuary and its watershed." Federal agencies are required to determine whether their activities are reasonably likely to affect any coastal use or resource and to conduct such activities in a manner consistent to the maximum extent practicable with the goals and objectives of EO 13508 and Virginia's CZM Program.

3.7.2 Environmental Consequences

Surface Water

Construction impacts associated with the Proposed Action could have a short-term effect on water resources by increasing storm water runoff from the site and carrying sediment and contamination loads into nearby waters during heavy rain. Construction activities would comply with the *Virginia Erosion* and Sediment Control Regulations and the Virginia Stormwater Management Regulations to avoid or minimize erosion.

No streams were identified on private land during field visits to the area within the limits of the Proposed Action. However, a perennial stream is located immediately adjacent to the study area within Training Area 2. The perennial stream runs beside and under (through a culvert system) the Proposed Action's route along the main Training Area 2 Maneuver Trail. There will be no direct impact to the perennial stream in terms of mechanical alteration however; proper erosion and sediment control and spill prevention measures will be part of any permit from DCR.

The Proposed Action would add approximately 0.52 acres of new impervious surfaces to the site, as shown in **Table 3.7**. Grassed swales would be utilized to address the additional impervious surface. No long-term impacts to surface water are likely to occur from on-going operations.

Table 3.7: Summary of New Impervious Surfaces

New Impervious Surface (Acres)			
Feature	**Alternative**		
	No Action	**Preferred**	
		Private Property	**JBLE-FE Property**
Maintenance Access Road	0	0.3	0.19
Pump Station	0	0	0.03
Total	***0***	***0.52***	

Groundwater

Construction activities such as fueling equipment or fluids leaked from equipment have the potential to occur and could result in groundwater contamination. BMP's would be used to prevent spills or leaks for vehicles, equipment, and containers. Spills or discharges of fuel, hydraulics, or other hazardous materials would be reported immediately by calling Fire and Emergency Services and responded to in accordance with the Fort Eustis Integrated Contingency Plan and the Fort Eustis Spill Prevention, Control and Countermeasures Plan.

Wetlands

Construction of the Proposed Action would impact approximately 0.003 acres of PEM wetlands located on private property. No wetlands on JBLE-FE property will be impacted (see **Figure 4**). As shown in **Table 3.8**, the impacts would be permanent.

Table 3.8: Wetland Impacts

Wetland	Wetland Type	Acres in the Project Area	Acres Impacted			
			No Action Alternative		Preferred Alternative	
			Temporary	Permanent	Temporary	Permanent
Private Property Wetland 1	PEM	0.002	0	0	0	0
Private Property Wetland 2	PEM	0.003	0	0	0	0.003
JBLE-FE Property Wetland 3	PFO	0.02	0	0	0	0
JBLE-FE Property Wetland 4	PFO	0.02	0	0	0	0
JBLE-FE Property Wetland 5	PFO	0.02	0	0	0	0

Wetland	Wetland Type	Acres in the Project Area	Acres Impacted			
			No Action Alternative		Preferred Alternative	
			Temporary	Permanent	Temporary	Permanent
JBLE-FE Property Wetland 6	PFO	0.0005	0	0	0	0
Total		***0.07***	***0***	***0***	***0***	***0.003***

Proposed impacts to two small isolated wetlands may require a Joint Permit Application be submitted to the regulatory agencies. No mitigation is anticipated to be required for this project due to minimal size of the impacts.

Floodplains

Because the Preferred Alternative is in an area mapped as Zone C by FEMA, there would be no impacts to floodplains due to the project.

Coastal Zone

To abide by the policies set forth within the Virginia CZM Program, a consistency determination has been completed and was submitted in March 2013to DEQ for review as part of this draft EA. The documentation shows that impacts to wetlands are being minimized to the maximum extent possible and that there would be no impacts to floodplains. In May 2013, DEQ concurred that the proposal is consistent with the CZM program. Furthermore, based on the type of project and provided that construction activities are completed in accordance with appropriate enforceable local, state, and federal laws/regulations; the project will be consistent with the goals and objectives of Virginia's CZM program and the intent of EO 13508. As the project moves forward and as outlined in DEQ's response, coordination with appropriate resource agencies will continue as necessary, see **Appendix E**.

3.8 Biological Resources

This section describes native or naturalized vegetation and wildlife in the project vicinity, and the habitats in which they occur.

3.8.1 Affected Environment

Vegetation

Extensive development near the Proposed Action has resulted in few areas retaining their native vegetation. The vegetation within and adjacent to the Proposed Action includes 77 acres (which are part of Training Area 2 on JBLE-FE) of mature hardwood forest, with developed areas slightly outside this area. Forested areas are shown on **Figure 4**. Tree species found on the project site are listed in **Table 3.9**. There was no understory in the forest, and the only common herbaceous species was Japanese honeysuckle (*Lonicera japonica*).

Table 3.9: Tree Species Found in Project Area

Common Name	Scientific Name
willow oak	*Quercus phellos*
sweetgum	*Liquidambar styraciflua*
American beech	*Fagus grandifolia*
loblolly pine	*Pinus taeda*
American holly	*Ilex opaca*
red maple	*Acer rubrum*
eastern redcedar	*Juniperus viginianus*
Other oak species	*Quercus* spp.

The primary objective of Fort Eustis's forest management program is to "maintain and enhance the installation's ecological integrity in support of the military mission (AFI32-7064)". USAF policy stipulates that forest resources must be managed for long-term sustainability, and that management must be compatible with protecting federally listed threatened and endangered species, maintaining biodiversity, protecting the Chesapeake Bay watershed, and providing wildlife habitat enhancement and outdoor recreational activities. The forest management program must also fully comply with all applicable federal laws, policies, and regulations pertaining to forest management.

Based on the dimensions of the road described in Section 2.1, approximately 0.32 acres would be affected on JBLE-FE property and 0.52 acres would be affected on private property. This amount of timber would not likely constitute a timber sale. Impacts on JBLE-FE land would be mitigated in accordance with the current *Timber Inventory and Forest Management Plan*. The portion of JBLE-FE that is in the limits of the Proposed Action is in a forest compartment whose management includes performing annual inspections for insect and disease control.

Wildlife Resources

Wildlife species likely to occur in the project vicinity are typical of those found in most urban-suburban areas. Mammalian species include white-tailed deer (*Odocoileus virginianus*), gray squirrel (*Sciurus carolinensis*), eastern cottontail (*Sylvilagus floridanus*), and raccoons (*Procyon lotor*). Bird species observed or expected to inhabit the area include the Wild Turkey (*Meleagris gallopavo*), Tufted Titmouse (*Baeolophus bicolor*), Carolina Chickadee (*Poecile carolinensis*), Northern Cardinal (*Cardinalis cardinalis*), Hairy Woodpecker (*Picoides villosus*), and Downy Woodpecker (*Picoides pubescens*). Additionally, various other passerine bird species as well as some raptors such as sharp-shined and Cooper's hawks (*Accipiter striatus velox* and *Accipiter cooperii*) would be expected. Reptiles observed in the project vicinity include Eastern ratsnakes (*Pantherophis alleghaniensis*), skinks (*Pleistodon spp.*) and box turtles (*Terrapene carolina*). Amphibians observed in the area include Fowler's toad (*Anaxyrus fowleri*), marbled salamander (*Ambystoma opacum*) and Eastern red-backed salamander (*Plethodon cinereus*). In 2007, JBLE-FE natural resources staff surveyed Training Area 2 and adjacent JBLE-FE property for the state threatened Mabees salamander (*Ambystoma mabeei*) though none were found.

Completion of U.S. Fish and Wildlife Service's (USFWS) "Information, Planning, and Conservation System" (IPaC) project review process indicated that no federally threatened or endangered wildlife species or federal candidate species are known to occur within the limits of the Proposed Action. Searches of the Virginia Department of Game and Inland Fisheries database and DCR's Natural Heritage Resources database indicated that there are no rare, threatened, or endangered floral or faunal species within a two mile radius of the Proposed Action. See **Appendix F**.

Bald eagles occur on JBLE-FE. Currently seven active nest sites are documented by installation natural resources staff. However, no nest sites are known to exist in Training Area 2 nor in the immediate area of the project on JBLE-FE property.

3.8.2 Environmental Consequences

As discussed below, minor short-term and long-term effects to biological resources are anticipated from implementation of the Proposed Action.

Vegetation

Mature trees would be cleared to allow for the construction and installation of the subterranean pipe and access road. Construction would disturb the plant ecology in the immediate vicinity of the project site. After the pipe, booster station, and access road are in place, disturbed areas would be stabilized with non-invasive grass species. Temporary measures (silt fencing) would be used to ensure that no trees outside the intended area of disturbance would be removed. However, approximately 0.81 acres of forested land would be disturbed. Approximately 0.32 acres would be affected on JBLE-FE property and 0.52 acres would be affected on private property The disturbance would be linear, approximately 1,760 feet long and 20 feet wide. All other forest would remain intact. Given the limited acreage of forest that would be disturbed, and the linear nature of the disturbance, no mitigation is planned.

USFWS IPaC review indicated that the only potential federally listed plant species that might occur at JBLE-FE is the Sensitive Joint-Vetch (*Aeschynomene virginica*). This species occurs in aquatic systems (fresh to slightly brackish tidal river systems) and normally where flooding tends to occur twice daily within the intertidal zones. The upland forested area of Training Area 2 is not appropriate habitat for this species. There are no federally listed threatened or endangered plant species known to exist on the Project Site. See **Appendix F.**

Wildlife Resources

There are no federally listed threatened or endangered wildlife species on the Project Site or on JBLE-FE property. Additionally, there are no known bald eagle nest sites in Training Area 2 nor nest sites near other areas of the project on JBLE-FE property. Consequently, no impacts to protected species are expected. Additionally, with the incorporation of proper erosion and sediment controls and BMPs to negate sediment runoff and increased storm water flow, impacts to rare, threatened and endangered species that may be located outside the project area would be avoided.

Removal of vegetative habitat may have minor adverse short-term effects on wildlife at the site due to displacement. Noise, dust, and destruction of habitat from construction would temporarily disturb

wildlife in and directly around the project area. Some animals may gradually re-enter the area once construction of the Proposed Action is complete and succession has begun. Overall, the effects on wildlife would be minor and short-term, as habitat would be only temporarily disturbed and most wildlife species would avoid the disturbance by relocating to adjacent undisturbed areas.

3.9 Cultural Resources

3.9.1 Affected Environment

Section 106 of the National Historic Preservation Act of 1966, as amended, requires federal agencies to consider the effects of their programs, projects, and actions on historic properties and to allow the Advisory Council on Historic Preservation an opportunity to comment. Qualifying properties include any prehistoric or historic district, site, building, structure, or object eligible for inclusion in the National Register of Historic Places. If adverse effects on historic, archaeological, or cultural properties are located within a project's Area of Potential Effect, then agencies must attempt to avoid, minimize, or mitigate the impacts to resources that are significant in our nation's history.

Cultural resources at JBLE-FE are managed according to the Fort Eustis *Integrated Cultural Resources Management Plan: 2012-2016 Draft (*ICRMP). The ICRMP provides guidelines and procedures to enable JBLE-FE to meet its legal responsibilities pertaining to cultural resources and includes the process for moving forward when these are identified within project site boundaries.

3.9.2 Environmental Consequences

In a letter to the Virginia Department of Historic Resources (VDHR), dated January 4, 2013, the USAF Civil Engineering Division reported that no historic properties are present in the project area. VDHR issued their concurrence on January 23, 2013.

3.10 Socioeconomics

3.10.1 Affected Environment

Socioeconomics examines the social and economic characteristics of a community. Demographic variables such as population size, level of employment, and incomes assist in analyzing the fiscal condition of a community and its government, school system, public services, healthcare facilities and other amenities. The socioeconomic Region of Influence (ROI) for this project consists of US Census block groups 032300-3 and 032400-2. The Proposed Action is completely within these block groups.

The regional economy is dominated by non-farming industries such as Government and Government enterprises, retail trade, professional and technical services and health care. JBLE-FE is a major employer in the area, with an annual payroll of over $622 million in Fiscal Year 2010. The only two businesses in the study area are High Liner Foods and Newport News Industrial. Each of the block groups in the ROI contains 834 housing units; however, there are none in the study area.

3.10.2 Environmental Consequences

Implementation of the Proposed Action will result in no significant impacts to socioeconomics in either the short- or long-term. The construction phase could have a temporary positive effect on the local

economy due to the employment of local construction workers. No impacts are expected to either Fort Eustis or private sector employees with the implementation of the Proposed Action. The Proposed Action is not anticipated to affect median household incomes, and it would not impact any housing units.

3.11 Transportation

Transportation in and around the limits of the Proposed Action consists of Military training routes (those associated with Training Areas I & II Maneuver Trail), and the local road and street network. Major roads near the project area include Warwick Boulevard, Fort Eustis Boulevard, Washington Boulevard, Jefferson Avenue and Interstate 64.

3.11.1 Affected Environment

JBLE-FE is located in the northwestern part of Newport News, near the James City County line and is served by the surrounding roadway network. The public access point for JBLE-FE is on Washington Boulevard, at the northern end of the installation. Military personnel can also access JBLE-FE via secured gates on Shellabarger Drive, on the eastern boundary of the installation. On-installation routes through JBLE-FE include Washington Boulevard, Taylor Avenue, Madison Avenue, and Pershing Avenue. Newport News-Williamsburg International Airport, approximately seven miles from the main gate, is the closest commercial aviation facility.

3.11.2 Environmental Consequences

Transportation-related impacts from the Proposed Action would be negligible. Lane closures may occur intermittently along Enterprise Drive in order to move equipment to and from the project site. No full roadway closures are anticipated. Construction and worker vehicles are expected to have sufficient parking space.

3.12 Solid Waste and Utilities

This section discusses the systems and facilities that provide water, wastewater treatment, solid waste disposal, communications, natural gas and electricity.

3.12.1 Affected Environment

Potable Water Systems

According to VDH records, there is no evidence of wells in the project vicinity. ODUS owns and operates the water facilities at JBLE-FE. Water is supplied to the adjacent private land by NNWW. Water comes from the Lee Hall WTP, operated by NNWW. Water entering this treatment plant comes in the form of surface water from the Chickahominy River and brackish water from six deep wells that tap into the Potomac Aquifer. The existing water distribution system consists of approximately 50 miles of pipe, a water booster pumping station and two elevated storage tanks. JBLE-FE is currently fed through a single 14-inch water line which extends from Warwick Boulevard down Washington Boulevard to the existing water booster station in Building 6.

The surface water is pumped to the treatment plant, where it passes through screens. Chemicals are added to cause tiny particles in the water to cling together, making them easier to remove. After the water is

clarified, it is disinfected to kill microorganisms such as bacteria and viruses. The water is then sent through filters to remove any remaining particles. Lime is added to adjust the pH, fluoride is added to prevent tooth decay, and another chemical is added to control corrosion inside the pipe system. Finally, a secondary disinfectant is added to maintain disinfection in the pipe system while transporting water to homes and businesses.

Brackish well water is pumped to a desalination plant at the Lee Hall facility. Using reverse osmosis, water is forced by high pressure through membranes that remove the salt and most other contaminants to produce very high-quality water. The water is blended with treated surface water and sent to customers.

Wastewater

According to the VDH, there is no evidence of septic systems in the project vicinity. ODUS owns and operates the sanitary sewer facilities at JBLE-FE. Newport News owns and operates the sanitary sewer facilities on the private land in the project area. All wastewater generated in the project vicinity is conveyed to the Hampton Roads Sanitation District's James River Treatment Plant on Riverview Parkway in Newport News. Sewage flows to the plant via gravity sewers and force mains. The Treatment Plant has the capacity to process and treat 20 million gallons of wastewater per day. Once treatment of wastewater is complete, all treated water is discharged into the James River. The James River Treatment Plant is currently in compliance with all of the discharge standards required under its Virginia Pollutant Discharge Elimination System permit.

Stormwater Management

Stormwater from most of the study area is not treated. On the portion of the study area located on JBLE-FE, stormwater moves via natural drainages into Skiffes Creek and Bailey Creek. Stormwater on the front portion of the private parcels on Enterprise Drive flows into a roadside ditch which discharges to Skiffes Creek. Stormwater from the back portion of these parcels is treated in a small BMP near the JBLE-FE boundary. Skiffes Creek and Bailey Creek ultimately discharge into the James River, a tributary of the lower Chesapeake Bay. Virginia has stringent standards to protect the Chesapeake Bay watershed and its valuable resources and requires that all jurisdictions implement a stormwater management program to control the quantity and quality of stormwater runoff resulting from new development. JBLE-FE furthers these efforts by maintaining a Stormwater Pollution Prevention Plan that establishes BMP's for controlling and preventing contaminants associated with construction and industrial activity from reaching area surface waters.

Solid Waste

There are no active landfills on JBLE-FE; all solid waste from the base is transported to a permitted facility located off of the installation. Solid wastes in the project area are collected and disposed of in the landfill off Big Bethel Road in the City of Hampton. Recycling collection is provided both on JBLE-FE and in the City of Newport News.

Communications

Cable television, internet and telephone service in the study area is provided by Cox Communications and Verizon. Cox Communications has its headquarters in Atlanta and serves over 6 million customers

nationwide. Verizon is based in New York City and has over 98 million customers in the United States. There are fiber optic lines adjacent to the site of the proposed water booster station.

Natural Gas

Natural gas in the project area is provided by Virginia Natural Gas. Headquartered in Norfolk, Virginia Natural Gas serves over 275,000 customers in southeastern Virginia. There are natural gas lines adjacent to the land proposed for the water booster station.

Electricity

Dominion Virginia Power provides electrical service in the project area. Based in Richmond, Dominion Virginia Power serves 2.4 million customers in Virginia and northeastern North Carolina. There are electric lines running through the site of the proposed water booster station.

3.12.2 Environmental Consequences

Potable Water Systems

It is possible that short-term, localized disruptions to water service could occur at the TEMF due to construction activities. No other effects are anticipated with implementation of the Proposed Action.

Wastewater

The Proposed Action would have no impact on any existing wastewater infrastructure.

Stormwater System

Development projects typically increase stormwater runoff to surrounding ground water and surface waters during construction, when sedimentation is increased. However, because this project does not require a large increase in impervious surfaces, it is likely to have a negligible effect on stormwater quantity or quality. BMPs would be utilized to mitigate any effects.

Solid Waste

Implementation of the Proposed Action is not likely to generate a significant amount of waste during construction or operation. Any waste generated by contractor should be disposed of by the contractor at a permitted facility off installation, which would have no impact on solid waste disposal program.

Communications

Communications would not be impacted by the Proposed Action.

Electricity and Gas

The Proposed Action would require the relocation of one underground electrical line. ODUS would coordinate this work with Dominion Resources. Natural gas service would not be impacted by the Proposed Action.

3.13 Hazardous Materials

3.13.1 Affected Environment

All Hazardous Materials (HMs) must be registered with the HazMart IAW JBLE-I 32-101, Environmental Management prior to being brought onto or used on JBLE-FE.

JBLE-FE generates a variety of Hazardous Wastes (HWs) and is regulated as a Large Quantity Generator (LQG). These hazardous wastes are managed at the Installation Hazardous Waste Accumulation Facility (HWAF). All HWs generated on JBLE-FE must be managed with IAW JBLE-I 32-101 and coordination must be made with the HWAF.

The Department of Defense established the Installation Restoration Program (IRP) in 1975 to provide guidance and funding for the investigation and remediation of hazardous waste sites caused by historical activities at military installations. The fundamental goal of the JBLE-FE IRP is to protect human health, safety and the environment. The IRP is carried out in accordance with all federal, state, and local laws. The primary federal laws are Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and Superfund Amendments and Reauthorization Act (SARA).

The 2008 *Fort Eustis Virginia, Army Defense Environmental Restoration Program Installation Action Plan* identifies the types and suspected sources of contamination on the installation and provides a clean-up strategy for each site. The only IRP site near the Proposed Action is Landfill 15. This inactive facility operated on JBLE-FE from 1972 until 1988. It is adjacent to the access road near the southeastern project terminus. During its operation, the landfill reportedly received hazardous waste consisting of domestic trash, sewage, sludge, incinerator ash and grease. The landfill was capped in 1988 and re-vegetated. DEQ considers the landfill closed and revoked its permit in 2007, yet annual maintenance of the cap (mowing, over-seeding, erosion control) will continue throughout the life of the closed landfill.

A Phase I Environmental Site Assessment was conducted on the private property that is part of the Proposed Action. As part of the assessment, a search of Federal and State hazardous materials databases was conducted for the project site and surrounding vicinity. The search indicated that Icelandic USA Inc. (High Liner Foods) is listed in the TIER 2 database for ammonia (anhydrous), CO_2 and chlorine storage onsite, and is in the Resource Conservation and Recovery Act Non-Generator (RCRA-Non-Gen) and Facility Index System (FINDS) databases. In addition to the project site, the search identified three industrial facilities along Enterprise Drive that were included in the following databases: two in RCRA-Non Gen, two in RCRA-Conditionally Exempt Small Quantity Generator, one in RCRA-LQG, and three in FINDS.

3.13.2 Environmental Consequences

Less than one acre of land would be disturbed as a result of the Proposed Action. Excavation depths would be limited to eight feet. Given the minimal anticipated ground disturbance from the Proposed Action, hazardous materials impacts are not anticipated. However, there is a potential that contaminated groundwater has migrated from Landfill 15 to the subsurface of the project site. While unlikely, ODUS would develop a plan to address groundwater contamination if it is encountered.

Construction activities would include the use of hazardous materials and could generate hazardous waste (i.e., solvents, oil). Accidents could result in leaking or spillage of hazardous materials or hazardous waste. Therefore the project has the potential to result in adverse impacts to the environment. The intensity and duration of any impacts would vary greatly depending on the substances involved and conditions of the accident. With implementation of safety measures and proper procedures for the handling, storage, and disposal of hazardous materials and wastes, the potential for adverse impacts would be minimized.

3.14 Environmental Justice

In February 1994, President Clinton signed EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. This EO directs each federal agency to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate disproportionately high and adverse human health or environmental effects of programs, policies, and activities on minority populations and low income populations in the United States". The goal of this order is to avoid the disproportionate placement of adverse environmental, economic, social, or health impacts from Federal actions and policies on minority and low-income populations due to implementation of a Proposed Action.

As defined by *Environmental Justice Guidance Under NEPA* (CEQ, 1997), "minority populations" include persons who identify themselves as Asian or Pacific Islander, Native American or Alaskan Native, black (not of Hispanic origin), or Hispanic. A minority population exists where the percentage of minorities in an affected area either exceeds 50 percent or is meaningfully greater than in the general population. Low-income populations are identified using the Census Bureau's statistical poverty threshold, which is based on income and family size.

The 2011 federal poverty guidelines (based and Health and Human Services thresholds) define the poverty level as an annual income of $10,890 or less for an individual, and $22,350 or less for a family of four. **Table 3.10** shows environmental justice statistics for Virginia, Newport News, and the study area. The median household income data are from 2011, while the remaining data are from 2010.

Table 3.10: 2010 Housing Units and Median Household Income

Characteristic	Geography			
	Block Group 032300-3	Block Group 032400-2	Newport News	Virginia
Estimated 2011 Median Household Income	$46,875	$53,621	$50,942	$63,302
Income Below Poverty Level in Past 12 Months	17.8%	10.7%	13.5%	10.3%
Minority Population	35.0%	48.1%	51.0%	31.4%
Hispanic Population	15.4%	10.9%	8.2%	8.3%

Source: American Community Survey, 2010 and 2011

According to 2010 American Community Survey (ACS) data, minorities comprised 38.4 percent of the ROI's population, which is less than the Newport News minority population of 51.0 percent, but greater than Virginia's minority population (31.4 percent). Hispanics comprise 14.2 percent of the population in the ROI, compared to 8.2 percent in Newport News and 8.3 percent in Virginia. ACS data for 2011 indicate a ROI poverty level of 14.6 percent, higher than both the Newport News and Virginia rates (13.5 and 10.3 percent, respectively).

Because the Preferred Alternative is not within a residential community and it would not influence access to employment opportunities, transportation facilities, or utilities, the Proposed Action would not result in disproportionate and adverse effects to minority or low-income populations.

4.0 CONCLUSION

The Proposed Action consists of the construction of a new alternate water supply system for JBLE-FE, including a meter vault, backflow preventer, water booster station, approximately 2,450 linear feet of buried12-inch pipe, and a crush and run access road for maintenance; approximately 1700 feet long and 12 feet wide. The new alternate water supply system is needed to provide a redundant water source to be used in the case of an outage in the main system.

The No Action Alternative was used as a baseline for comparing impacts of the Build Alternatives. Because it does not meet the purpose and need for the project, however, it was not considered when selecting a Preferred Alternative. A decision matrix was created to compare the effects of two Build Alternatives (with a total of three alignments), and then select a Preferred Alternative. The matrix examined the following: impacts to the public and traffic, property impacts and easements, ease of operations and maintenance, environmental impacts, constructability, utility conflicts, and costs. Based on results of the decision matrix, and due to its shorter length and lack of a river crossing, Alternative 2 in the Oakland Industrial Park was selected as the Preferred Alternative. It yielded the highest score in the decision matrix and would create the fewest adverse effects to natural resources, including wetland ecosystems, mature forests, and a variety of plant and animal species.

The Preferred Alternative meets the project's purpose and need by providing the alternate water supply system needed for redundancy in the case of an outage in the main system.

The Proposed Action would not displace any residences or businesses, and would not impact any historic resources. There would be no Environmental Justice concerns. Impacts from generation of hazardous waste or solid waste, and utilities in the project area are expected to be minimal. **Table 4.1** quantifies the impacts that would result from implementation of the Proposed Action. A total of 1.18 acres of land would be disturbed; 0.81 acres of this is forested land that would be eliminated. The Proposed Action would require 0.50 acres of permanent easements. There would be no floodplain impacts, but 0.003 acres of PEM wetlands would be permanently impacted. A permit will be secured from USACE and DEQ for all wetland impacts.

Table 4.1: JBLE-FE Alternate Water Supply System Impact Summary

Impact Category	Impact (Acres)		
	Total	Private Property	JBLE-FE Property
Land Disturbance	1.18	0.50	0.68
Forested Land	0.81	0.50	0.31
Permanent Easements	0.50	0.50	0
Impervious Surface	0.52	0.30	0.22
Wetlands	0.003	0.003	0

Minor short-term impacts, primarily from construction activities, are anticipated to occur to air quality, noise levels, aesthetics and visual quality, geology and soils, biological resources, and traffic. Short-term beneficial effects on socioeconomics are likely, due to the potential employment of local workers during construction.

No significant adverse effects resulting from implementation of the Proposed Action have been identified. All agency coordination and permitting requirements would be completed prior to construction of the project. Mitigation measures associated with the Proposed Action include a variety of BMPs to be implemented both during and after construction to avoid and minimize adverse environmental effects. These include:

- Compliance with a DCR-approved stormwater management plan and erosion and sediment control plan, using stormwater management and erosion control BMPs required by DCR.
- Use of tree preservation measures. Fencing would be incorporated into construction plans in order to protect all trees outside the intended area of disturbance.
- Securing a Clean Water Act Section 404 permit from the USACE and a permit from DEQ, pursuant to Virginia's State Water Control Law and its Nontidal Wetlands Act. Any required mitigation measures in the permit would be implemented.
- Treating all construction equipment in a manner that would minimize the spread of invasive species.
- Compliance with all applicable federal, state, and local air regulations.
- Compliance with Virginia's Coastal Zone Management Program and EO 13508.
- Conducting construction activities during normal weekday work hours (generally 7 a.m. to 5 p.m.) and avoiding conducting construction activities on evenings and weekends to the extent practical.
- Preserving natural areas where possible and using non-invasive vegetation to stabilize soil.

Based on the evaluation of environmental consequences of the proposed action discussed in this EA, an Environmental Impact Statement (EIS) is not necessary and a FNSI would be prepared.

5.0 REFERENCES

Bailey, C. M. 1999. *Simplified Geologic Map of Virginia*. College of William and Mary. http://web.wm.edu/geology/virginia/provinces/pdf/va_geology.pdf

Clean Air Act. 2003. Section 176(c), 42 USC §7596(c)

Council on Environmental Quality. 2010. Memorandum for Heads of Federal Departments and Agencies on Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions. <http://ceq.hss.doe.gov/nepa/regs/Consideration_of_Effects_of_GHG_Draft_NEPA_ Guidance_FINAL_02182010.pdf>.

Designation of Areas for Air Quality Planning Purposes, 2012. 40 CFR §81 ().

Determining Conformity of Federal Actions to State or Federal Implementation Plans, 40 CFR §93(B) (1993).

Electronic Code of Federal Regulations. 2012. Title 32, National Defense. Part 989, Environmental Impact Analysis Process (EIAP). http://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&SID=29e0e1fbca87ab91d7f44edd69c51062&n=32y6.1.1.16.20&r=PART&ty=HTML#32:6.1.1.16.20.0.1.24

Endangered Species Act. 1973. 7 U.S.C. 136; 16 U.S.C. 460 et seq.

Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. 1994. Executive Order 12898.

Federal Emergency Management Agency. 1986. Flood Insurance Rate Map, Panel 510103 0003C. http://map1.msc.fema.gov/idms/IntraView.cgi?KEY=6081263&IFIT=1

Floodplain Management. 1977. Executive Order 11988.

Fort Eustis Integrated Natural Resources Management Plan (Final Draft), 2013-2018.

Hampton Roads Planning District Commission. 2011. *Hampton Roads Regional Water Supply Plan.* http://www.hrpdc.org/Documents/HRRegWaterSupplyPlan/Sections/FINAL_Sec.1_Existing_Sources_Jul2011.pdf

Integrated Natural Resources Management Plan, US Army Transportation Center, Fort Eustis, VA, 2005-2010, 25 Mar 2005.

Joint Base Langley-Eustis. 2013. Joint Base Langley-Eustis home page. http://www.jble.af.mil/

Joint Base Langley-Eustis. 2012. *Fort Eustis Integrated Natural Resources Management Plan 2012-2017.*

Koizumi, J. 2005. *Sample Construction Scenarios for Projects Less than Five Acres in Size*. South Coast Air Quality Management District, Diamond Bar, CA. http://www.aqmd.gov/ceqa/handbook/lst/FinalReport.pdf

McDaid, C.L.; C. Birkett, P. Barry, 2012 *Fort Eustis Integrated Cultural ResourcesManagement Plan: 2012-2016*, manuscript on file Fort Eustis Cultural Resources Managemen tProgram, Fort Eustis Virginia

National Forest Management Act. 1976. 16 USC §§ 1601 et seq.

Newport News Planning Department. 2008. *Framework for the Future 2030*. http://www2.nngov.com/newport-news/plan/framework2008/index.html

Protection of Wetlands. 1977. Executive Order 11990 42 FR 26961.

South Coast Air Quality Management District (SCAQMD) (2008). *Off-road Mobile Source Emission Factors (Scenario Years 2007-2025)*. <http://www.aqmd.gov/ceqa/handbook/offroad/offroad.html> Accessed October 10, 2012.

U.S. Army Corps of Engineers. 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0).*

U.S. Army Corp of Engineers. 1987. *Corps of Engineers Wetland Delineation Manual*. Tech. Rpt. Y-87-1. Waterways Experiment Station, Corps of Engineers, Vicksburg, Mississippi. 100 pp.

U.S. Census Bureau. 2013. American Fact Finder. http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml

U.S. Department of Agriculture, Natural Resources Conservation Service. 1995. Soil Survey of Tidewater Cities Area, Virginia. http://soils.usda.gov/survey/online_surveys/virginia/TidewaterCitiesVA2009/TidewaterCities.pdf

U.S. Department of the Army, Fort Eustis, Virginia. 2008. *Grow the Force Environmental Assessment*.

U.S. Environmental Protection Agency. 2013. *Surf Your Watershed*. http://cfpub.epa.gov/surf/huc.cfm?huc_code=02080206

U. S. Environmental Protection Agency. 2011. *Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling-Compression Ignition.* Report No. NR-009d.

U.S. Environmental Protection Agency. 2004. National Ambient Air Quality Standards.

U.S. Environmental Protection Agency. 1974. *Safe Drinking Water Act of 1974*, as amended 1986 and 1996. 42 USC 6A. http://water.epa.gov/lawsregs/rulesregs/sdwa/index.cfm

U.S. Environmental Protection Agency. 1974. Noise levels affecting health and welfare. U.S. Environmental Protection Agency. <http://www.epa.gov/history/topics/noise/01.htm>. Accessed September 2012.

U. S. Geological Survey. 2013. *Water Resources of the United States.* Groundwater Watch, Newport News City, Virginia. http://groundwaterwatch.usgs.gov/countymaps/VA_700.html

Virginia Administrative Code. 2012. *Virginia Erosion and Sediment Control Law.* Title 10, Chapter 5, Article 4.

Virginia Administrative Code. 2012. *Virginia Erosion and Sediment Control Regulations*. (4 VAC 30-50 et seq.)

Virginia Administrative Code. 2011. *Virginia Stormwater Management Act*. Title 10, Chapter 6.

Virginia Administrative Code. 2011. *Virginia Stormwater Management Regulations*. (4 VAC 50-60 et seq.)

Virginia Administrative Code. 2000. *Virginia Nontidal Wetlands Act*. (§ 62.1-44.15:5)

Virginia Administrative Code. 1950. *State Water Control Law*, as amended 1968, 1970, 1978, and 2000. (§ 62.1-44.2)

Virginia Department of Environmental Quality. 2006. Request for Redesignation to Attainment for the Hampton Roads Nonattainment Area. http://www.deq.state.va.us/Portals/0/DEQ/Air/Planning/HRREDGN1.pdf

6.0 PERSONS CONSULTED

Mr. Steve Bloodgood
High Liner Foods

Timothy P. Christensen, MS, CHMM
Chief, Conservation Branch
Environmental Element
Civil Engineer Division

James Dolan, CWB
Wildlife Biologist
Environmental Element
Civil Engineer Division
733 Mission Support Group

Jeffrey P. Kapinos, P.E
Civil Engineer

Mr. Jim Kelly
NNS&DDCo

Mr. Peter Kube
US Army Corps of Engineers,
Norfolk District

Ms. Cindy Schulz
US Department of the Interior,
Fish and Wildlife Service

Ms. Ellie Irons
Virginia Department of Environmental Quality

Mr. Kilby Majette
Natural Resources Conservation Service,
Quinton Service Center

Ms. Sheila W. McAllister
City of Newport News
Planning Director

Christopher L. McDaid
Cultural Resources Manager
Environmental Element
Civil Engineer Division
733d Mission Support Group

Mr. Neil A. Morgan
City of Newport News
City Manager

Mr. Brian L. Ramaley
City of Newport News
Waterworks Director

Ms. Kathleen Kilpatrick, SHPO
Virginia Department of Historic Resources

Ms. Barbara Rudnick
US Environmental Protection Agency,
Region III, Environmental Programs Branch

7.0 DISTRIBUTION LIST

7.1 State and Federal Agencies

Ms. Cindy Schulz
US Department of the Interior, Fish and Wildlife Service
6669 Short Lane
Gloucester, VA 23061

Ms. Kathleen Kilpatrick
SHPO
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, VA 23221

Ms. Sheila W. McAllister
City of Newport News
Planning Director
2400 Washington Avenue
Newport News, VA 23607

Ms. Ellie Irons
Virginia Department of Environmental Quality
629 East Main Street, 8th Floor
Richmond, VA 23219

7.2 Libraries

Groninger Library
BLDG 1313
Fort Eustis, VA 23604

Grissom Public Library
366 DeShazor Drive
Newport News, VA 23606

Christopher Newport University Library
1 University Place
Newport News, VA 23606

7.3 Newspapers

Daily Press
7505 Warwick Blvd.,
Newport News, VA 23607

Appendix A – Agency Correspondence

WHITMAN, REQUARDT & ASSOCIATES, LLP
ENGINEERS · ARCHITECTS · PLANNERS
EST. 1915

June 6, 2013

Ms. Barbara Rudnick
NEPA Team Lead
US Environmental Protection Agency, Region III, Environmental Programs Branch
Mail Code 3EA30 1650 Arch Street
Philadelphia, PA 19103

Re: Alternative Water Source, Joint Base Langley-Eustis Alternative

Dear Ms. Rudnick,

On behalf of Joint Base Langley-Eustis (JBLE) (point of contact: Mr. Timothy Christensien, Chief, Conservation Branch Environmental Element [Timothy.P.Christensen.civ@mail.mil, 757-878-4231]), Whitman, Requardt and Associates (WR&A) would like to thank you for porviding input on the above referenced project's Environmental Assessment (EA). WR&A is providing the following responses to address your comments/questions (EPA memo attached).

- A scoping letter was sent to your office in January, 2013. However we have no record of receipt of a response.
- High Liner Foods Inc. is the owner of the private property on which a portion of the alternate water supply system would be located. A sentence referencing coordination with the private owner has been added (pages 6, and 13).
- Exhibit 3 (page 12) has been updated to include the identification of the newly constructed TEMF (referenced on page 18).
- Removed "protective" from vegetation discussion and added the following footnote on depth of soil disturbance (page 19): "Typical depth of installation is 3 ft. of cover with a 1 ft. pipe and 6 inches of stone bedding (about 5 ft). Pipeline and booster station installation does not exceed 8 ft."
- Added the following footnote on the definition of "Impact Area" (page 20): "The Munitions and Explosives of Concern Hazard Assessment (MEC HA) defines a target area as "Areas at which munitions fire was directed." Those areas within the designated range boundaries which could be used as a target area or which could reasonably be used as a munitions fire area. With the exception of the range safety fans all areas within the designated range limit would be considered impact areas."
- Size of wetlands are stated in Table 3.8 (page 23).
    - no indirect impacts are anticipated
    - an alignment shift is not possible due to future expansion plans of the property owner, the current alignment will utilize a 20 foot easement strip that is the only amenable option
- Specific aquatic life associated with the perennial stream noted on page 22 is not known. However, the stream will be avoided and therefore no direct impacts are anticipated. Indirect impacts are also not anticipated due to the nature of the project.
- The EA has been updated to include EO 13508 discussion (page 22, 24, 35)
- Regarding the possibility of testing groundwater near the Landfill 15 site, a review of the sites history found no seepage issues or leachate leaking out and borings completed in January 2012

indicated static water at 7 feet (after 24 hours) for the one closest to the landfill. Therefore, no ground water testing is planned.

Very truly yours,

Whitman, Requardt & Associates, LLP

Nicholas Nies
Senior Environmental Planner

Enclosures
cc: Timothy P. Christensen, Chief, Conservation Branch-Environmental Element

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

SUBJECT: Joint Base Langley-Eustis Alternative Water Supply System EA

FROM: Karen DelGrosso, NEPA Reviewer for Federal Facilities

TO: Barbara Rudnick, NEPA Team Leader

As requested, I gave a quick review to the subject EA and have the following comments/questions as highlighted in bold.

Page 6, "Coordination with Federal and State agencies to solicit comments related to their corresponding areas of jurisdiction, and to obtain concurrence with the initial findings for the Proposed Action, was initiated in January 2013. Agencies contacted include the US Fish and Wildlife Service (USFWS), US Army Corps of Engineers (USACE), US Environmental Protection Agency (EPA),…." **It is important to note that there was no interaction with the EPA other than a phone call made on or near 5/1/13 asking for a quick review of the existing EA.**

Page 13, "The Preferred Alternative would span approximately 2,450 feet, with approximately 1,350 feet on JBLE-FE, and the remaining 1,100 feet on adjacent private property." **Who owns the private property? Has there been involvement with and approval of private property owners?**

Page 18, "The access road would be 12 feet wide, spanning the length of the project. While the road itself would be a new visual element, the surrounding forest would be left intact, largely hiding the road from view. The proposed water booster station would be adjacent to the newly-constructed Tactical Equipment Maintenance Facility (TEMP), and would not change the visual character of the area." **Indicate on map the proposed water booster station near the newly-constructed TEMF.**

Page 19, "Installation of the pipe and construction of the maintenance access road and water booster station would involve the removal of protective vegetation and disturbance of soils to the depth required for installation or construction." **Explain, describe and quantify protective vegetation impacted. The approximate depth of soil disturbance should be stated in the EA. Page 31 states, "Excavation depths would be limited to eight feet." Is this the maximum depth of disturbance?**

Page 20, "Nearly 100% of the Installation has been delineated by the US Army Corps of Engineers Norfolk District excluding most of the impact area which is not associated with the Proposed Action." **Please explain "impact area" referenced in relation to the Proposed Action and include map of area.**

Page 20 states, "Two wetlands were identified on the private land within the limits of the Proposed Action. Both were Palustrine Emergent (PEM), with the vegetation dominated by cattails (Typha latifolia), soft rush (Juncus effuses), and woolgrass (Scirpus cyperinus). Four Palustrine Forested (PFO) wetlands were found on the JBLE-FE land within or near the limits of the Proposed Action. The dominant wetland vegetation on this part of the base includes cherrybark oak (Quercus pagoda), green ash (Fraxinus Pennsylvania), chain fern (Woodwardia spp.), and soft rush. No impacts to wetlands on the installation are expected based on avoidance. Wetlands located within or near the limits of the Proposed Action are shown on Figure 4." **What is the size of the wetlands? Describe indirect impacts to wetlands. Figure 4 indicates a direct impact to Wetland 2 and possibly Wetland 1 (on private land). It appears from the map that forested land is to the left of Wetlands 1 and 2. Can the alignment be moved to the left to avoid impact to wetlands?**

Page 22, "However, a perennial stream is located immediately adjacent to the study area within Training Area 2. The perennial stream runs beside and under (through a culvert system) the Proposed Action's route along the main Training Area 2 Maneuver Trail. There will be no direct impact to the perennial stream in terms of mechanical alteration however; proper erosion and sediment control and spill prevention measures will be part of any permit from DCR." **Please provide information on the condition of the perennial stream, aquatic life in the stream and potential indirect impacts to the stream as a result of the Proposed Action.**

Page 22, "The study area is entirely within Virginia's Coastal Zone Management (CZM) Program area, which includes the Chesapeake Bay." **The EA did not address EO 13508 Chesapeake Bay Watershed.**

Page 30, "The only IRP site near the Proposed Action is Landfill 15." This inactive facility is adjacent to the access road. The landfill was capped in 1988 and re-vegetated; DEQ considers the landfill closed and revoked its permit in 2007. Page 31

states, "… there is a potential that contaminated groundwater has migrated from Landfill 15 to the subsurface of the project site. While unlikely, ODUS would develop a plan to address groundwater contamination if it is encountered." **Can groundwater be tested prior to excavation to determine the condition of the site?**

DEPARTMENT OF THE ARMY
NORFOLK DISTRICT, CORPS OF ENGINEERS
FORT NORFOLK, 803 FRONT STREET
NORFOLK, VIRGINIA 23510-1096

REPLY TO
ATTENTION OF

May 8, 2013

PRELIMINARY JURISDICTIONAL DETERMINATION

Southern Virginia Regulatory Section
(NAO-2013-00463, Skiffs Creek)

Whitman, Requardt & Associates, LLP
Mr. David Kwasniewski
9030 Stony Point Parkway, Suite 220
Richmond, Virginia 23235

Dear Mr. Kwasniewski:

This letter is in regard to your request for a preliminary jurisdictional determination for waters of the U.S. (including wetlands) within the project study area for the proposed Joint Base Langley-Eustis alternate water source off Enterprise Drive in Newport News, Virginia.

The drawing entitled "Fort Eustis Alternate Water Source" dated January 10, 2013 and submitted on March 6, 2013 by WR&A provides the locations of waters and/or wetlands on the property listed above. The basis for this delineation includes application of the Corps' 1987 Wetland Delineation Manual and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region and the positive indicators of wetland hydrology, hydric soils, and hydrophytic vegetation and the presence of an ordinary high water mark.

No permit will be required from the Corps of Engineers for the proposed work shown on sheets 1 through 40 of the drawings entitled "Old Dominion Utility Services Alternate Water Supply Line and Booster Station, Fort Eustis" dated February 2013 by WR&A. Please coordinate the proposed work with the Department of Environmental Quality.

The Norfolk District has relied on the information and data provided by the applicant or agent. If such information and data subsequently prove to be materially false or materially incomplete, this verification may be suspended or revoked, in whole or in part, and/or the Government may institute appropriate legal proceedings.

Discharges of dredged or fill material, including those associated with mechanized landclearing, into waters and/or wetlands on this site may require a Department of the Army permit and authorization by state and local authorities including a Virginia Water Protection Permit from the Virginia Department of Environmental Quality (DEQ), a permit from the Virginia Marine Resources Commission (VMRC) and/or a permit from your local wetlands board. This letter is a confirmation of the Corps preliminary jurisdiction for the waters and/or

wetlands on the subject property and does not authorize any work in these areas. Please obtain all required permits before starting work in the delineated waters/wetland areas.

This is a preliminary jurisdictional determination and is therefore not a legally binding determination regarding whether Corps jurisdiction applies to the waters or wetlands in question. Accordingly, you may either consent to jurisdiction as set out in this preliminary jurisdictional determination and the attachments hereto if you agree with the determination, or you may request and obtain an approved jurisdictional determination. This preliminary jurisdictional determination and associated wetland delineation map may be submitted with a permit application.

The "Preliminary Jurisdictional Determination Form" is enclosed. Please review the document, sign, and return a copy to the Corps Regulatory Office (Melissa Nash, 803 Front St. Norfolk, VA 23510) within 30 days of receipt and keep a copy for your records. This delineation of waters and/or wetlands is valid for a period of five years from the date of this letter unless new information warrants revision prior to the expiration date.

If you have any questions, please contact Melissa Nash at 757-201-7489 or melissa.a.nash@usace.army.mil.

Sincerely,

Melissa A Nash

for Lynette R. Rhodes
Chief, Southern Virginia
Regulatory Section

Enclosure:

Preliminary Jurisdictional Determination Form

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

BACKGROUND INFORMATION:

A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD): March 4, 2013

B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:
Joint Base Langley-Eustis
c/o Whitman, Requardt & Associates, LLP
Mr. David Kwasniewski
9030 Stony Point Parkway, Suite 220

C. DISTRICT OFFICE: Norfolk District (CENAO-REG)

FILE NAME: Joint Base Langley -Eustis Alternate Water Supply

FILE NUMBER: NAO-2013-00463

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:
(USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)

State: **VIRGINIA** County/parish/borough: City: Newport News

Center coordinates of site (lat/long in degree decimal format):

Latitude: 37.10471 ° N Longitude: -76.51973 ° W

Universal Transverse Mercator:

Name of nearest waterbody: Skiffs Creek

Identify (estimate) amount of waters in the review area:

Non-wetland waters: linear feet; width (ft); and/or acres.

Cowardin Class:

Stream Flow:

Wetlands: 0.005 acres

Cowardin Class: PEM

Name of any water bodies on the site that have been identified as Section 10 waters:

Tidal: Skiffs Creek

Non-Tidal:

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:

☒ Field Determination. Date(s): May 1, 2013

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable.

3. This preliminary JD finds that there *"may be"* waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA:

Data reviewed for preliminary JD (check all that apply) - checked items should be included in case file and, where checked and requested, appropriately reference sources below.

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Exhibit entitled "Fort Eustis Alternate Water Source" dated January 10, 2013 and submitted on March 6, 2013 by WR&A

☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.

☒ Office concurs with data sheets/delineation report. March 4, 2013 report

☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps:

☐ Corps navigable waters' study:

☐ U.S. Geological Survey Hydrologic Atlas:

☐ USGS NHD data.

☐ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name: Yorktown Quad

☒ USDA Natural Resources Conservation Service Soil Survey.

Citation: SSURGO Soils Newport News

☒ National wetlands inventory map(s). Cite name: Yorktown Quad

☐ State/Local wetland inventory map(s):

☒ FEMA/FIRM maps: Chuckatuck Quad

☐ 100-year Floodplain Elevation: (National Geodetic Vertical Datum of 1929)

☒ Photographs: ☒ Aerial (Name & Date): 1990 Color IR; Kucera photo

or ☐ Other (Name & Date):

☐ Previous determination(s):

File no. and date of response letter:

☐ Other information (please specify):

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Melissa A Nash

Signature
Regulatory Project Manager
(REQUIRED)

May 8, 2013

Date

Signature of person requesting
Preliminary JD
(REQUIRED, unless obtaining the signature is impracticable)

Date

SAMPLE

Site Number	Latitude	Longitude	Cowardin Class	Estimated amount of aquatic resource in review area	Class of aquatic resource

Smith, Susan

From: Baxter, Amanda
Sent: Monday, February 25, 2013 11:16 AM
To: Smith, Susan
Cc: Nies, Nicholas
Subject: FW: Alternative Water Source, JBLE

From: Albrecht, Edward (VDH) [mailto:Edward.Albrecht@vdh.virginia.gov]
Sent: Monday, February 25, 2013 10:15 AM
To: Baxter, Amanda
Cc: Ellis, Charles (DEQ); Matthews, Barry (VDH)
Subject: Alternative Water Source, JBLE

Location: Joint Base Langley-Eustis
Newport News

VDH – Office of Drinking Water has reviewed the above project. ODW comments on the proximity of public drinking sources and potential impacts to those sources considering the scope of the project.

There are 2 groundwater wells within a 1 mile radius: the City of Newport News has two groundwater wells located 2,653 ft away north of the project site.

There is 1 surface water intake in Zone 1 (within a 5 mile radius), the City of Newport News, which is 1.5 miles upgradient of the project site.

There are no apparent impacts and ODW has no additional scoping comments.

Edward Albrecht
Virginia Department of Health,
Office of Drinking Water
109 Governor Street, Sixth Floor
Richmond, VA 23219
(P) 804-864-7495
Edward.Albrecht@vdh.virginia.gov

Smith, Susan

From: Nash, Melissa A NAO <Melissa.A.Nash@usace.army.mil>
Sent: Monday, February 11, 2013 11:12 AM
To: Smith, Susan
Cc: Baxter, Amanda
Subject: RE: Fort Eustis waterline project scoping (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Susan,

The proposed project appears to avoid the wetland impacts on the property. I would just recommend strict erosion and sediment control when the work is occurring close to the wetland areas.

Thanks, Melissa

Melissa Nash
Norfolk District, Regulatory Branch
803 Front Street
Norfolk, VA 23510

-----Original Message-----
From: Smith, Susan [mailto:ssmith@wrallp.com]
Sent: Wednesday, January 23, 2013 1:04 PM
To: Nash, Melissa A NAO
Cc: Baxter, Amanda
Subject: RE: Fort Eustis waterline project scoping (UNCLASSIFIED)

Hi Melissa,

The standard window for comments is within 30 days of receipt of the request. However, we have a tight deadline on this project, so if you could comment sooner than that I would appreciate it.

Thanks,
Susan

-----Original Message-----
From: Nash, Melissa A NAO [mailto:Melissa.A.Nash@usace.army.mil]
Sent: Tuesday, January 22, 2013 10:33 AM
To: Smith, Susan
Subject: Fort Eustis waterline project scoping (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Susan,

The project has been assigned to me. I am the point of contact for Fort Eustis. John Evans actually handles Langley. Tim Christensen mentioned this project to me recently. Do you have a deadline for comments?

Melissa
(757) 201-7489

---Original Message-----
From: Kube, Peter R NAO
Sent: Thursday, January 17, 2013 2:44 PM
To: Evans, John D NAO; Smith, Susan
Subject: FW: Project Scoping, JBLE (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Hi Susan,

John Evans handles project reviews at Joint Base Langley Eustis. He has been assigned the review of your request.

Thanks.

Peter Kube, Chief
Western Virginia Regulatory Section
US Army Corps of Engineers
803 Front Street
Norfolk, VA 23510

Phone (757) 201-7504

The Norfolk District is committed to providing the highest level of support to the public. In order for us to better serve you, we would appreciate you completing our Customer Satisfaction Survey located at http://per2.nwp.usace.army.mil/survey.html. We value your comments and appreciate your taking the time to complete the survey.

-----Original Message-----
From: Smith, Susan [mailto:ssmith@wrallp.com]
Sent: Thursday, January 17, 2013 2:29 PM
To: Kube, Peter R NAO
Subject: Project Scoping, JBLE

Mr. Kube,

Attached please find a scoping letter and map for an alternate water source project on Joint Base Langley Eustis, in Tidewater Virginia. The Preferred Alternative includes construction of a 12-inch water main that will connect to an existing 16 inch water main located in the Oakland Industrial Park. Additionally, the Preferred Alternative includes a short, gravel, access road to allow for maintenance of the water mains. We would appreciate your comments.

Thank you,

Susan L. Smith, WPIT | Senior Environmental Scientist

Whitman, Requardt & Associates, LLP

9030 Stony Point Parkway, Suite 220

Richmond, VA 23235

(Phone) 804.272.8700

(Main Fax) 804.272.8897

ssmith@wrallp.com

www.wrallp.com

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Smith, Susan

From: Baxter, Amanda
Sent: Monday, January 28, 2013 11:48 AM
To: Smith, Susan
Cc: Nies, Nicholas; Kwasniewski, David
Subject: FW: Joint Base Langley Eustis Alternate Water Source Scoping

See below...

From: Johnson, Mike (MRC) [mailto:Mike.Johnson@mrc.virginia.gov]
Sent: Monday, January 28, 2013 10:04 AM
To: Baxter, Amanda
Cc: Ellis, Charles (DEQ)
Subject: Joint Base Langley Eustis Alternate Water Source Scoping

Ms. Baxter,
Please be advised that the Commission, pursuant to Section 28.2-1200 et seq of the Code of Virginia, has jurisdiction over any encroachments in, on, or over the beds of the bays, ocean, rivers, streams, or creeks which are the property of the Commonwealth. Accordingly, if any portion of the subject project involves any encroachments channelward of ordinary high water along natural rivers and streams above the fall line or mean low water below the fall line, a permit may be required from our agency. Any jurisdictional impacts will be reviewed by VMRC during the Joint Permit Application process. Thank you for the opportunity to comment.

Mike Johnson
Habitat Management Division
VMRC
2600 Washington Ave.
Newport News, Va 23607
757-247-2255

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
TDD (804) 698-4021
www.deq.virginia.gov

Douglas W. Domenech
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

January 23, 2013

Ms. Amanda J. Baxter
Vice-President, Environmental
Whitman, Requardt & Associates, LLP
3701 Pender Drive, Suite 450
Fairfax, Virginia 22030

RE: Alternative Water Source, Joint Base Langley-Eustis

Dear Ms. Baxter:

Thank you for your January 17, 2013 letter (received via e-mail) regarding the preparation of an Environmental Assessment (EA) pursuant to the National Environmental Policy Act (NEPA) covering a proposed alternative water source for Joint Base Langley-Eustis (JBLE) in Newport News.

PROJECT DESCRIPTION

As described in your letter, JBLE would construct a 12-inch water main that will connect with an existing 16-inch water main located in the Oakland Industrial Park. In addition, a short gravel access road would be built to allow for maintenance of the water mains. This project would provide a redundant water supply point, improving system reliability in the case of an outage in the existing system.

ENVIRONMENTAL REVIEW UNDER THE NATIONAL ENVIRONMENTAL POLICY ACT

The roles of the Virginia Department of Environmental Quality (DEQ) in relation to the project are as follows. First, DEQ's Office of Environmental Impact Review (OEIR) will coordinate Virginia's review of the NEPA document and comment to JBLE on behalf of the Commonwealth. A similar review process will pertain to the Federal Consistency Determination (FCD) (see "Federal Consistency..." heading, below). If the FCD is provided as part of the environmental document, there can be a single review.

FEDERAL CONSISTENCY UNDER THE COASTAL ZONE MANAGEMENT ACT

Pursuant to the Coastal Zone Management Act of 1972, as amended, federal activities affecting Virginia's coastal resources or coastal uses must be consistent with the Virginia Coastal Zone Management Program (VCP) (see section 307(c)(1) of the Act and the *Federal Consistency Regulations*, 15 CFR Part 930, subpart C, sections 930.30 *et seq.*). JBLE must provide a consistency determination which includes an analysis of the proposed activities in light of the enforceable policies of the VCP (first enclosure) and a commitment to comply with the enforceable policies. In addition, we invite your attention to the advisory policies of the VCP (second enclosure). As indicated, the FCD may be provided as part of the NEPA document or independently, depending on the JBLE's preference. We recommend, in the interests of an effective review, that the FCD be provided with the NEPA document and that at least 60 days be allowed for review, in keeping with the *Federal Consistency Regulations* (see section 930.41(a)). Section 930.39 of these *Regulations*, and Virginia's *Federal Consistency Information Package* (available at http://www.deq.virginia.gov/Programs/EnvironmentalImpactReview/FederalConsistencyReviews.aspx) give content requirements for the FCD.

PROJECT SCOPING AND AGENCY INVOLVEMENT

While this Office does not participate in scoping efforts beyond the advice given herein, other agencies are free to provide scoping comments concerning the preparation of the NEPA document. Accordingly, we are sharing our response to the letter with selected state and local Virginia agencies which have responsibilities bearing on the subject of the NEPA document. These are likely to include the following (note: starred (*) agencies administer one or more of the enforceable policies of the VCP):

Department of Environmental Quality:
- Office of Environmental Impact Review
- Tidewater Regional Office*
- Division of Air Program Coordination*
- Division of Land Protection and Revitalization (formerly Waste Division)

Department of Conservation and Recreation:
- Division of Stormwater Management*
- Division of Planning and Recreation Resources

Department of Health (Division of Water Programs)*
Department of Game and Inland Fisheries*
Virginia Marine Resources Commission*
Department of Historic Resources
Hampton Roads Planning District Commission
City of Newport News.

INFORMATION ON WASTE MATERIALS and OTHER ISSUES

DEQ and other agencies maintain databases on hazardous materials. We are enclosing a copy of Appendix 10 (see below) of DEQ's most recent Environmental Impact Report Procedure Manual (dated July 2012) that lists databases and indicates their uses and contents. Questions on waste management may be directed to DEQ's Division of Land Protection and Revitalization (Steve Coe at 804-698-4029 or *Stephen.Coe@deq.virginia.gov*).

- DEQ Online Database: Virginia Environmental Geographic Information Systems

  Information on Permitted Solid Waste Management Facilities, Impaired Waters, Petroleum Releases, Registered Petroleum Facilities, Permitted Discharge (Virginia Pollution Discharge Elimination System Permits) Facilities, Resource Conservation and Recovery Act (RCRA) Sites, Water Monitoring Stations, National Wetlands Inventory
  - www.deq.virginia.gov/ConnectWithDEQ/VEGIS.aspx

- DEQ Permit Expert

  Helps determine if a DEQ permit is necessary
  - www.deq.virginia.gov/permitexpert/

- DHR Data Sharing System

  Survey records in the DHR inventory
  - www.dhr.virginia.gov/archives/data_sharing_sys.htm

- DCR Natural Heritage Search

  Produces lists of resources that occur in specific counties, watersheds or physiographic regions
  - www.dcr.virginia.gov/natural_heritage/dbsearchtool.shtml

- DGIF Fish and Wildlife Information Service

  Information about Virginia's Wildlife resources
  - http://vafwis.org/fwis/

- Environmental Protection Agency (EPA) Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) Database: Superfund Information Systems

Information on hazardous waste sites, potentially hazardous waste sites and remedial activities across the nation, including sites that are on the National Priorities List (NPL) or being considered for the NPL
  - www.epa.gov/superfund/sites/cursites/index.htm

- EPA RCRAInfo Search

  Information on hazardous waste facilities
- www.epa.gov/enviro/facts/rcrainfo/search.html
  EPA Envirofacts Database

  EPA Environmental Information, including EPA-Regulated Facilities and Toxics Release Inventory Reports
  - www.epa.gov/enviro/index.html

- EPA NEPAssist Database

  Facilitates the environmental review process and project planning
  - http://nepassisttool.epa.gov/nepassist/entry.aspx

In order to ensure an effective coordinated review of environmental documents, OEIR typically require 18 copies. The submission may include 3 hard copies and 15 CDs or 3 hard copies and an electronic copy available for download at a website, file transfer protocol site or the VITAShare file transfer system (*https://vitashare.vita.virginia.gov*). The document should include a U.S. Geological Survey topographic map as part of its information. We recommend, as well, that project details unfamiliar to people outside the Army and Air Force be adequately described.

If you have questions about the environmental review process or the federal consistency review process, please feel free to call me at (804) 698-4325 or Charlie Ellis at (804) 698-4195.

I hope this information is helpful to you.

Sincerely,

Ellie Irons, Program Manager
Environmental Impact Review

Attachments

ec: Cindy Keltner, DEQ-TRO
Kotur S. Narasimhan, DEQ-DAPC
G. Stephen Coe, DEQ-DLPR
Roberta Rhur, DCR
Amy M. Ewing, DGIF
Barry Mathews, VDH
Roger W. Kirchen, DHR
Tony Watkinson, VMRC
John Carlock, Hampton Roads PDC

cc. Sheila McAllister, City of Newport News

Smith, Susan

From: Smith, Susan
Sent: Friday, January 18, 2013 2:40 PM
To: Baxter, Amanda
Subject: FW: Project Scoping, JBLE
Attachments: 20120413_letter directing to website.pdf

Amanda,

I'm taking care of this.

From: Troy Andersen [mailto:troy_andersen@fws.gov]
Sent: Thursday, January 17, 2013 3:58 PM
To: Baxter, Amanda
Cc: Smith, Susan; Christensen, Timothy P CIV (US)
Subject: RE: Project Scoping, JBLE

Ms. Baxter:

To provide you with more timely information, we have developed an online project review process for Service Trust Resources (See attached letter). The process is accessible at: http://www.fws.gov/northeast/virginiafield/endspecies/Project_Reviews_Introduction.html. It will allow you to evaluate your project for potential Trust Resource habitat, and if the project will have no effect on Trust Resources, you will be able to self-certify and receive a letter from the Service to this effect. If your project may affect listed species, going through the process will help you develop a project review package that will allow us to expedite our review of the project. Please use this process for this and all future project reviews.

The attached letter is currently being updated and I serve as the primary point of contact vice Kim Smith listed in the letter.

V/R
Troy

Troy M. Andersen
Endangered Species/Conservation Planning Assistance Supervisor
USFWS – Virginia Field Office
Phone: 804-693-6694 Ext. 166
Mobile: 804-654-9235
Visit us at: http://www.fws.gov/northeast/virginiafield/

From: Smith, Susan [mailto:ssmith@wrallp.com]
Sent: Thursday, January 17, 2013 3:08 PM
To: cindy_schulz@fws.gov
Subject: Project Scoping, JBLE

Ms. Schulz,

Attached please find a scoping letter and map for an alternate water source project on Joint Base Langley Eustis, in Tidewater Virginia. The Preferred Alternative includes construction of a 12-inch water main that will connect to an existing 16 inch water main located in the Oakland Industrial Park. Additionally, the Preferred Alternative includes a short, gravel, access road to allow for maintenance of the water mains. We would appreciate your comments.

Thank you,

Susan L. Smith, WPIT | *Senior Environmental Scientist*

Whitman, Requardt & Associates, LLP
9030 Stony Point Parkway, Suite 220
Richmond, VA 23235
(Phone) 804.272.8700
(Main Fax) 804.272.8897
ssmith@wrallp.com
www.wrallp.com

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
6669 Short Lane
Gloucester, Virginia 23061

APR 13 2012

Greetings:

Due to increases in workload and refinement of our priorities in Virginia, this office will no longer provide individual responses to requests for environmental reviews. However, we want to ensure that U.S. Fish and Wildlife Service trust resources continue to be conserved. When that is not possible, we want to ensure that impacts to these important natural resources are minimized and appropriate permits are applied for and received. We have developed a website, http://www.fws.gov/northeast/virginiafield/endspecies/Project_Reviews_Introduction.html, that provides the steps and information necessary to allow landowners, applicants, consultants, agency personnel, and any other individual or entity requiring review/approval of their project to complete a review and come to the appropriate conclusion.

The website will be frequently updated to provide new species/trust resource information and methods to review projects, so refer to the website for each project review to ensure that current information is utilized.

If you have any questions about project reviews or need assistance, please contact Kimberly Smith of this office at (804) 693-6694, extension 124, or kimberly_smith @fws.gov. For problems with the website, please contact Mike Drummond of this office at mike_drummond@fws.gov.

Sincerely,

Cynthia A Schulz

Cindy Schulz
Supervisor
Virginia Field Office

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS, 733D MISSION SUPPORT GROUP
JOINT BASE LANGLEY-EUSTIS
FORT EUSTIS, VIRGINIA

JAN 04 2013

Civil Engineering Division

Mr. Marc Holma
Review and Compliance
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, Virginia 23221

Dear Mr. Holma,

The US Air Force proposes to construct an alternate water source pipeline for Joint Base Langley-Eustis (JBLE). The project area for the pipeline is located in Training Area 2 of Fort Eustis and also on the privately owned Oakland Industrial Park. The portion of the project area within the boundary of JBLE is located in forested uplands in Training Area 2 bordered to the south by a gravel road and to the north by the installation boundary. The project area corresponds to the immediate vicinity of the proposed water line alignment and covers approximately 2.45 acres (0.99 ha). The portion of the project area on the Oakland Industrial Park was subject to archaeological survey prior to the development of the property. No archaeological sites were identified within the current project area.

The cultural resources staff at Joint Base Langley-Eustis-Eustis conducted a Phase I archaeological survey of the portion of the proposed Alternate Water Source project area which fell within installation boundaries on October 23-25 and November 29, 2012 (see report). The results of the archaeological survey of the Alternate Water Source project area indicate that no archaeological sites and four locations are located within the project area. By definition, Locations 1-4 are not eligible for the National Register of Historic Places. In addition, no historic buildings are present in the project area. Therefore, the Air Force has determined that no historic properties are present in the project area. The portion of the project area on the Oakland Industrial Park was subject to archaeological survey prior to the development of the property. No archaeological sites were identified within the current project area prior to the construction of the Industrial Park.

Therefore, the Air Force has determined that there are no historic properties in the area of potential effects for this undertaking. We request that you review this determination and forward your comments within 30 days. If you do not comment within 30 days, we will assume you agree with the Air Force's determination of no historic properties adversely affected by this undertaking and will proceed without taking further steps in the Section 106 process.

If you have any questions, please contact Christopher L. McDaid at (757) 878-4123 ext 295 or email christopher.l.mcdaid.civ@mail.mil.

Sincerely,

Susan P. Miller
Chief, Environmental Element

Enclosures

The VDHR concurs with the Air Force's determination of no historic properties in the APE of the Alternate Water Source Pipeline project

Project Reference: FE 2012.023: Alternate Water Source Pipeline project

23 JAN 13
Signature/Date

DHR# 2013-0064

WHITMAN, REQUARDT & ASSOCIATES, LLP
ENGINEERS · ARCHITECTS · PLANNERS EST. 1915

January 17, 2013

Ms. Ellie Irons
Virginia Department of Environmental Quality
629 East Main Street, 8th Floor
Richmond, VA 23219

Re: Alternative Water Source, Joint Base Langley-Eustis
City of Newport News

Dear Ms. Irons:

On behalf of Joint Base Langley-Eustis (JBLE) (point of contact: Mr. Timothy Christensien, Chief, Conservation Branch Environmental Element [Timothy.P.Christensen.civ@mail.mil, 757-878-4231]), Whitman, Requardt and Associates is preparing an Environmental Assessment (EA) in accordance with Air Force policies implementing the National Environmental Policy Act (NEPA) 32 CFR Part 989 for a proposed alternate water source for JBLE in the Tidewater area of Newport News, Virginia. The Preferred Alternative includes construction of a 12-inch water main that will connect to an existing 16 inch water main located in the Oakland Industrial Park. Additionally, the Preferred Alternative includes a short, gravel, access road to allow for maintenance of the water mains. The attached map depicts the location of the Preferred Alternative.

The current system is expected to remain operational for only 22 hours if there is a water main break or if maintenance is required. The proposed project would provide a redundant water supply point, improving system reliability in the case of an outage in the existing system. The study will evaluate the potential effects of the proposed project on natural, cultural, and human resources.

The purpose of this letter is to request your input in the identification of environmental resources and/or potential environmental constraints and other relevant factors associated with the Preferred Alternative. Specifically we are requesting any information or records regarding environmental issues within the project area. In addition, any comments or concerns you have regarding the proposed project would be greatly appreciated. Additionally, per the Department of Environmental Quality Environmental Impact Review process for federal projects, please distribute this scoping letter to the appropriate state agencies.

Should you require additional information or have questions about the proposed project, please contact me at 703-293-7437 or by email at abaxter@wrallp.com.

Very truly yours,

Whitman, Requardt & Associates, LLP

Amanda J. Baxter
Vice President - Environmental

Enclosures
cc: Timothy P. Christensen, Chief, Conservation Branch-Environmental Element

WHITMAN, REQUARDT & ASSOCIATES, LLP
ENGINEERS · ARCHITECTS · PLANNERS EST. 1915

January 17, 2013

Ms. Barbara Rudnick
US Environmental Protection Agency, Region III, Environmental Programs Branch
Mail Code 3EA30 1650 Arch Street
Philadelphia, PA 19103

Re: Alternative Water Source, Joint Base Langley-Eustis
City of Newport News

Dear Ms. Rudnick:

On behalf of Joint Base Langley-Eustis (JBLE) (point of contact: Mr. Timothy Christensien, Chief, Conservation Branch Environmental Element [Timothy.P.Christensen.civ@mail.mil, 757-878-4231]), Whitman, Requardt and Associates is preparing an Environmental Assessment (EA) in accordance with Air Force policies implementing the National Environmental Policy Act (NEPA) 32 CFR Part 989 for a proposed alternate water source for JBLE in the Tidewater area of Newport News, Virginia. The Preferred Alternative includes construction of a 12-inch water main that will connect to an existing 16 inch water main located in the Oakland Industrial Park. Additionally, the Preferred Alternative includes a short, gravel, access road to allow for maintenance of the water mains. The attached map depicts the location of the Preferred Alternative.

The current system is expected to remain operational for only 22 hours if there is a water main break or if maintenance is required. The proposed project would provide a redundant water supply point, improving system reliability in the case of an outage in the existing system. The study will evaluate the potential effects of the proposed project on natural, cultural, and human resources.

The purpose of this letter is to request your input in the identification of environmental resources and/or potential environmental constraints and other relevant factors associated with the Preferred Alternative. Specifically we are requesting any information or records regarding environmental issues within the project area. In addition, any comments or concerns you have regarding the proposed project would be greatly appreciated.

Should you require additional information or have questions about the proposed project, please contact me at 703-293-7437 or by email at abaxter@wrallp.com.

Very truly yours,

Whitman, Requardt & Associates, LLP

Amanda J. Baxter
Vice President - Environmental

Enclosures
cc: Timothy P. Christensen, Chief, Conservation Branch-Environmental Element

WHITMAN, REQUARDT & ASSOCIATES, LLP
ENGINEERS · ARCHITECTS · PLANNERS EST. 1915

January 17, 2013

Mr. Steve Bloodgood
High Liner Foods
190 Enterprise Drive
Newport News, VA 23603

Re: Alternative Water Source, Joint Base Langley-Eustis
City of Newport News

Dear Mr. Bloodgood:

On behalf of Joint Base Langley-Eustis (JBLE) (point of contact: Mr. Timothy Christensien, Chief, Conservation Branch Environmental Element [Timothy.P.Christensen.civ@mail.mil, 757-878-4231]), Whitman, Requardt and Associates is preparing an Environmental Assessment (EA) in accordance with Air Force policies implementing the National Environmental Policy Act (NEPA) 32 CFR Part 989 for a proposed alternate water source for JBLE in the Tidewater area of Newport News, Virginia. The Preferred Alternative includes construction of a 12-inch water main that will connect to an existing 16 inch water main located in the Oakland Industrial Park. Additionally, the Preferred Alternative includes a short, gravel, access road to allow for maintenance of the water mains. The attached map depicts the location of the Preferred Alternative.

The current system is expected to remain operational for only 22 hours if there is a water main break or if maintenance is required. The proposed project would provide a redundant water supply point, improving system reliability in the case of an outage in the existing system. The study will evaluate the potential effects of the proposed project on natural, cultural, and human resources.

The purpose of this letter is to request your input in the identification of environmental resources and/or potential environmental constraints and other relevant factors associated with the Preferred Alternative. Specifically we are requesting any information or records regarding environmental issues within the project area. In addition, any comments or concerns you have regarding the proposed project would be greatly appreciated.

Should you require additional information or have questions about the proposed project, please contact me at 703-293-7437 or by email at abaxter@wrallp.com.

Very truly yours,

Whitman, Requardt & Associates, LLP

Amanda J. Baxter
Vice President - Environmental

Enclosures
cc: Timothy P. Christensen, Chief, Conservation Branch-Environmental Element

WHITMAN, REQUARDT & ASSOCIATES, LLP
ENGINEERS · ARCHITECTS · PLANNERS EST. 1915

January 17, 2013

Mr. Neil A. Morgan
City of Newport News
City Manager
2400 Washington Avenue
Newport News, VA 23607

Re: Alternative Water Source, Joint Base Langley-Eustis
City of Newport News

Dear Mr. Morgan:

On behalf of Joint Base Langley-Eustis (JBLE) (point of contact: Mr. Timothy Christensien, Chief, Conservation Branch Environmental Element [Timothy.P.Christensen.civ@mail.mil, 757-878-4231]), Whitman, Requardt and Associates is preparing an Environmental Assessment (EA) in accordance with Air Force policies implementing the National Environmental Policy Act (NEPA) 32 CFR Part 989 for a proposed alternate water source for JBLE in the Tidewater area of Newport News, Virginia. The Preferred Alternative includes construction of a 12-inch water main that will connect to an existing 16 inch water main located in the Oakland Industrial Park. Additionally, the Preferred Alternative includes a short, gravel, access road to allow for maintenance of the water mains. The attached map depicts the location of the Preferred Alternative.

The current system is expected to remain operational for only 22 hours if there is a water main break or if maintenance is required. The proposed project would provide a redundant water supply point, improving system reliability in the case of an outage in the existing system. The study will evaluate the potential effects of the proposed project on natural, cultural, and human resources.

The purpose of this letter is to request your input in the identification of environmental resources and/or potential environmental constraints and other relevant factors associated with the Preferred Alternative. Specifically we are requesting any information or records regarding environmental issues within the project area. In addition, any comments or concerns you have regarding the proposed project would be greatly appreciated.

Should you require additional information or have questions about the proposed project, please contact me at 703-293-7437 or by email at abaxter@wrallp.com.

Very truly yours,

Whitman, Requardt & Associates, LLP

Amanda J. Baxter
Vice President - Environmental

Enclosures
cc: Timothy P. Christensen, Chief, Conservation Branch-Environmental Element

WHITMAN, REQUARDT & ASSOCIATES, LLP
ENGINEERS · ARCHITECTS · PLANNERS EST. 1915

January 17, 2013

Ms. Sheila W. McAllister
City of Newport News
Planning Director
2400 Washington Avenue
Newport News, VA 23607

Re: Alternative Water Source, Joint Base Langley-Eustis
City of Newport News

Dear Ms. McAllister:

On behalf of Joint Base Langley-Eustis (JBLE) (point of contact: Mr. Timothy Christensien, Chief, Conservation Branch Environmental Element [Timothy.P.Christensen.civ@mail.mil, 757-878-4231]), Whitman, Requardt and Associates is preparing an Environmental Assessment (EA) in accordance with Air Force policies implementing the National Environmental Policy Act (NEPA) 32 CFR Part 989 for a proposed alternate water source for JBLE in the Tidewater area of Newport News, Virginia. The Preferred Alternative includes construction of a 12-inch water main that will connect to an existing 16 inch water main located in the Oakland Industrial Park. Additionally, the Preferred Alternative includes a short, gravel, access road to allow for maintenance of the water mains. The attached map depicts the location of the Preferred Alternative.

The current system is expected to remain operational for only 22 hours if there is a water main break or if maintenance is required. The proposed project would provide a redundant water supply point, improving system reliability in the case of an outage in the existing system. The study will evaluate the potential effects of the proposed project on natural, cultural, and human resources.

The purpose of this letter is to request your input in the identification of environmental resources and/or potential environmental constraints and other relevant factors associated with the Preferred Alternative. Specifically we are requesting any information or records regarding environmental issues within the project area. In addition, any comments or concerns you have regarding the proposed project would be greatly appreciated.

Should you require additional information or have questions about the proposed project, please contact me at 703-293-7437 or by email at abaxter@wrallp.com.

Very truly yours,

Whitman, Requardt & Associates, LLP

Amanda J. Baxter
Vice President - Environmental

Enclosures
cc: Timothy P. Christensen, Chief, Conservation Branch-Environmental Element

WHITMAN, REQUARDT & ASSOCIATES, LLP
ENGINEERS · ARCHITECTS · PLANNERS EST. 1915

January 17, 2013

Mr. Jim Kelly
NNS&DDCo
182 Enterprise Drive
Newport News, VA 23603

Re: Alternative Water Source, Joint Base Langley-Eustis
City of Newport News

Dear Mr. Kelly:

On behalf of Joint Base Langley-Eustis (JBLE) (point of contact: Mr. Timothy Christensien, Chief, Conservation Branch Environmental Element [Timothy.P.Christensen.civ@mail.mil, 757-878-4231]), Whitman, Requardt and Associates is preparing an Environmental Assessment (EA) in accordance with Air Force policies implementing the National Environmental Policy Act (NEPA) 32 CFR Part 989 for a proposed alternate water source for JBLE in the Tidewater area of Newport News, Virginia. The Preferred Alternative includes construction of a 12-inch water main that will connect to an existing 16 inch water main located in the Oakland Industrial Park. Additionally, the Preferred Alternative includes a short, gravel, access road to allow for maintenance of the water mains. The attached map depicts the location of the Preferred Alternative.

The current system is expected to remain operational for only 22 hours if there is a water main break or if maintenance is required. The proposed project would provide a redundant water supply point, improving system reliability in the case of an outage in the existing system. The study will evaluate the potential effects of the proposed project on natural, cultural, and human resources.

The purpose of this letter is to request your input in the identification of environmental resources and/or potential environmental constraints and other relevant factors associated with the Preferred Alternative. Specifically we are requesting any information or records regarding environmental issues within the project area. In addition, any comments or concerns you have regarding the proposed project would be greatly appreciated.

Should you require additional information or have questions about the proposed project, please contact me at 703-293-7437 or by email at abaxter@wrallp.com.

Very truly yours,

Whitman, Requardt & Associates, LLP

Amanda J. Baxter
Vice President - Environmental

Enclosures
cc: Timothy P. Christensen, Chief, Conservation Branch-Environmental Element

WHITMAN, REQUARDT & ASSOCIATES, LLP
ENGINEERS · ARCHITECTS · PLANNERS EST. 1915

January 17, 2013

Mr. Brian L. Ramaley
City of Newport News
Waterworks Director
700 Town Center Drive
Newport News, VA 23606

Re: Alternative Water Source, Joint Base Langley-Eustis
City of Newport News

Dear Mr. Ramaley:

On behalf of Joint Base Langley-Eustis (JBLE) (point of contact: Mr. Timothy Christensien, Chief, Conservation Branch Environmental Element [Timothy.P.Christensen.civ@mail.mil, 757-878-4231]), Whitman, Requardt and Associates is preparing an Environmental Assessment (EA) in accordance with Air Force policies implementing the National Environmental Policy Act (NEPA) 32 CFR Part 989 for a proposed alternate water source for JBLE in the Tidewater area of Newport News, Virginia. The Preferred Alternative includes construction of a 12-inch water main that will connect to an existing 16 inch water main located in the Oakland Industrial Park. Additionally, the Preferred Alternative includes a short, gravel, access road to allow for maintenance of the water mains. The attached map depicts the location of the Preferred Alternative.

The current system is expected to remain operational for only 22 hours if there is a water main break or if maintenance is required. The proposed project would provide a redundant water supply point, improving system reliability in the case of an outage in the existing system. The study will evaluate the potential effects of the proposed project on natural, cultural, and human resources.

The purpose of this letter is to request your input in the identification of environmental resources and/or potential environmental constraints and other relevant factors associated with the Preferred Alternative. Specifically we are requesting any information or records regarding environmental issues within the project area. In addition, any comments or concerns you have regarding the proposed project would be greatly appreciated.

Should you require additional information or have questions about the proposed project, please contact me at 703-293-7437 or by email at abaxter@wrallp.com.

Very truly yours,

Whitman, Requardt & Associates, LLP

Amanda J. Baxter
Vice President - Environmental

Enclosures
cc: Timothy P. Christensen, Chief, Conservation Branch-Environmental Element

WHITMAN, REQUARDT & ASSOCIATES, LLP
ENGINEERS · ARCHITECTS · PLANNERS EST. 1915

January 17, 2013

Mr. Kilby Majette
Natural Resources Conservation Service, Quinton Service Center
2502 New Kent Highway
Quinton, VA 23141-1735

Re: Alternative Water Source, Joint Base Langley-Eustis
City of Newport News

Dear Mr. Majette:

On behalf of Joint Base Langley-Eustis (JBLE) (point of contact: Mr. Timothy Christensien, Chief, Conservation Branch Environmental Element [Timothy.P.Christensen.civ@mail.mil, 757-878-4231]), Whitman, Requardt and Associates is preparing an Environmental Assessment (EA) in accordance with Air Force policies implementing the National Environmental Policy Act (NEPA) 32 CFR Part 989 for a proposed alternate water source for JBLE in the Tidewater area of Newport News, Virginia. The Preferred Alternative includes construction of a 12-inch water main that will connect to an existing 16 inch water main located in the Oakland Industrial Park. Additionally, the Preferred Alternative includes a short, gravel, access road to allow for maintenance of the water mains. The attached map depicts the location of the Preferred Alternative.

The current system is expected to remain operational for only 22 hours if there is a water main break or if maintenance is required. The proposed project would provide a redundant water supply point, improving system reliability in the case of an outage in the existing system. The study will evaluate the potential effects of the proposed project on natural, cultural, and human resources.

The purpose of this letter is to request your input in the identification of environmental resources and/or potential environmental constraints and other relevant factors associated with the Preferred Alternative. Specifically we are requesting any information or records regarding environmental issues within the project area. In addition, any comments or concerns you have regarding the proposed project would be greatly appreciated.

Should you require additional information or have questions about the proposed project, please contact me at 703-293-7437 or by email at abaxter@wrallp.com.

Very truly yours,

Whitman, Requardt & Associates, LLP

Amanda J. Baxter
Vice President - Environmental

Enclosures
cc: Timothy P. Christensen, Chief, Conservation Branch-Environmental Element

WHITMAN, REQUARDT & ASSOCIATES, LLP
ENGINEERS · ARCHITECTS · PLANNERS EST. 1915

January 17, 2013

Mr. Peter Kube
US Army Corps of Engineers, Norfolk District
803 Front Street
Norfolk, VA 23510

Re: Alternative Water Source, Joint Base Langley-Eustis
City of Newport News

Dear Mr. Kube:

On behalf of Joint Base Langley-Eustis (JBLE) (point of contact: Mr. Timothy Christensien, Chief, Conservation Branch Environmental Element [Timothy.P.Christensen.civ@mail.mil, 757-878-4231]), Whitman, Requardt and Associates is preparing an Environmental Assessment (EA) in accordance with Air Force policies implementing the National Environmental Policy Act (NEPA) 32 CFR Part 989 for a proposed alternate water source for JBLE in the Tidewater area of Newport News, Virginia. The Preferred Alternative includes construction of a 12-inch water main that will connect to an existing 16 inch water main located in the Oakland Industrial Park. Additionally, the Preferred Alternative includes a short, gravel, access road to allow for maintenance of the water mains. The attached map depicts the location of the Preferred Alternative.

The current system is expected to remain operational for only 22 hours if there is a water main break or if maintenance is required. The proposed project would provide a redundant water supply point, improving system reliability in the case of an outage in the existing system. The study will evaluate the potential effects of the proposed project on natural, cultural, and human resources.

The purpose of this letter is to request your input in the identification of environmental resources and/or potential environmental constraints and other relevant factors associated with the Preferred Alternative. Specifically we are requesting any information or records regarding environmental issues within the project area. In addition, any comments or concerns you have regarding the proposed project would be greatly appreciated.

Should you require additional information or have questions about the proposed project, please contact me at 703-293-7437 or by email at abaxter@wrallp.com.

Very truly yours,

Whitman, Requardt & Associates, LLP

Amanda J. Baxter
Vice President - Environmental

Enclosures
cc: Timothy P. Christensen, Chief, Conservation Branch-Environmental Element

WHITMAN, REQUARDT & ASSOCIATES, LLP
ENGINEERS · ARCHITECTS · PLANNERS
EST. 1915

January 17, 2013

Ms. Cindy Shultz
US Department of the Interior, Fish and Wildlife Service
6669 Short Lane
Gloucester, VA 23061

Re: Alternative Water Source, Joint Base Langley-Eustis
City of Newport News

Dear Ms. Shultz:

On behalf of Joint Base Langley-Eustis (JBLE) (point of contact: Mr. Timothy Christensien, Chief, Conservation Branch Environmental Element [Timothy.P.Christensen.civ@mail.mil, 757-878-4231]), Whitman, Requardt and Associates is preparing an Environmental Assessment (EA) in accordance with Air Force policies implementing the National Environmental Policy Act (NEPA) 32 CFR Part 989 for a proposed alternate water source for JBLE in the Tidewater area of Newport News, Virginia. The Preferred Alternative includes construction of a 12-inch water main that will connect to an existing 16 inch water main located in the Oakland Industrial Park. Additionally, the Preferred Alternative includes a short, gravel, access road to allow for maintenance of the water mains. The attached map depicts the location of the Preferred Alternative.

The current system is expected to remain operational for only 22 hours if there is a water main break or if maintenance is required. The proposed project would provide a redundant water supply point, improving system reliability in the case of an outage in the existing system. The study will evaluate the potential effects of the proposed project on natural, cultural, and human resources.

The purpose of this letter is to request your input in the identification of environmental resources and/or potential environmental constraints and other relevant factors associated with the Preferred Alternative. Specifically we are requesting any information or records regarding environmental issues within the project area. In addition, any comments or concerns you have regarding the proposed project would be greatly appreciated.

Should you require additional information or have questions about the proposed project, please contact me at 703-293-7437 or by email at abaxter@wrallp.com.

Very truly yours,

Whitman, Requardt & Associates, LLP

Amanda J. Baxter
Vice President - Environmental

Enclosures
cc: Timothy P. Christensen, Chief, Conservation Branch-Environmental Element

Appendix B – Conceptual Plan Set

OLD DOMINION UTILITY SERVICES
ALTERNATE WATER SUPPLY LINE
AND BOOSTER STATION

FORT EUSTIS

FORT EUSTIS, VIRGINIA 23604

REZONING CASE #CZ-79-10 APPROVED 1979

FEBRUARY 2013

SHEET INDEX

VICINITY MAP

0 1000' 2000'

1"=1000'

SITE STATISTICS:

(SEE SHEET G1.01 FOR SITE AND BUILDING DATA.)

RESPONSIBLE LAND DISTURBER DESIGNATION

THE PERSON IDENTIFIED BELOW IS DESIGNATED AS THE RESPONSIBLE LAND DISTURBER WHO WILL BE IN CHARGE OF AND RESPONSIBLE FOR CARRYING OUT THE LAND DISTURBING ACTIVITY ASSOCIATED WITH THIS PROJECT. THIS PERSON MEETS THE APPLICABLE REQUIREMENTS OF VIRGINIA CODE SECTION 10.1-563 AND 10.1-566 BY VIRTUE OF THE FOLLOWING:

_____ RESPONSIBLE LAND DISTURBER CERTIFICATE.

_____ DCR CERTIFICATION FOR COMBINED ADMINISTRATOR, ADMINISTRATOR, PLAN REVIEWER, INSPECTOR, OR CONTRACTOR.

_X_ VIRGINIA PROFESSIONAL ENGINEER, LAND SURVEYOR, LANDSCAPE ARCHITECT, OR ARCHITECT.

RESPONSIBLE LAND DISTURBER CONTACT INFORMATION:

NAME (SIGNATURE)_____ DATE_____

NAME (PRINT) J. ANDREW LANDRUM

CERTIFICATION/REGISTRATION NUMBER 011862

MAILING ADDRESS 11870 MERCHANTS WALK, SUITE 100

NEWPORT NEWS, VA 23606

TELEPHONE 757-599-5101 FAX 757-599-5320

E-MAIL alandrum@wralp.com

THIS DESIGNATION MAY ONLY BE CHANGED BY A PLAN COVER SHEET REVISION THAT MUST BE SUBMITTED TO THE CITY FOR VERIFICATION AND APPROVAL.
THE DEPARTMENT OF PUBLIC WORKS/ENGINEERING MUST BE CONTACTED AT LEAST 48 HOURS PRIOR TO THE COMMENCEMENT OF ANY LAND DISTURBING ACTIVITY IN ORDER TO SCHEDULE A PRE-CONSTRUCTION MEETING. PLEASE CALL (757)-923-3645.

OLD DOMINION UTILITY SERVICES
INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

WHITMAN, REQUARDT & ASSOCIATES, LLP
11870 Merchants Walk, Suite 100, Newport News, VA 23606

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

REV	DATE	DESCRIPTION

OLD DOMINION UTILITY SERVICES 2023 HARRISON ROAD FORT EUSTIS, VIRGINIA, 23604 FEBRUARY 2013	SCALE 1" = 1000'	OLD DOMINION UTILITY SERVICES ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION	TITLE, LOCATION, AND SHEET INDEX	DRAWING G0.01	SHEET 1

CITY OF NEWPORT NEWS GENERAL NOTES:

1. EXTERIOR CONCRETE SHALL BE VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT) CLASS A3.
2. ANY AND ALL UTILITIES AND/OR OBSTRUCTIONS (POWER POLES, TELEPHONE PEDESTALS, GUY WIRES, WATER METERS, ETC.) THAT ARE REQUIRE TO BE RELOCATED OR ADJUSTED DUE TO CONSTRUCTION SHALL BE DONE SO AT THE OWNER'S/DEVELOPER'S EXPENSE.
3. THERE SHALL BE ONE (1) R7-8 HANDICAP SIGN PER HANDICAP PARKING SPACE PROVIDED WITH AN ADDITIONAL PLATE READING "PENALTY $100 - $500 TOW-AWAY ZONE. THE REQUIRED R7-8 HANDICAP PARKING SIGN ASSEMBLY(S) SHALL BE MOUNTED 4' MIN. TO 7' MAX. ABOVE THE PARKING SURFACE. AT LEAST ONE (1) OUT OF EVERY EIGHT (8) HANDICAP SPACES SHALL BE VAN ACCESSIBLE AND ALL REQUIRED AND DESIGNATED VAN ACCESSIBLE SPACES SHALL HAVE ADDITIONAL SIGNAGE READING "VAN ACCESSIBLE".
4. EXTERIOR LIGHTING MUST PROVIDE A MINIMUM ILLUMINATION LEVEL OF 0.6 FOOT-CANDLES FOR PARKING/DRIVING AREAS, 1.1 FOOT-CANDLES FOR OPEN WALKWAYS AND 4.3 FOOT-CANDLES FOR ENCLOSED WALKWAYS. LIGHTING TO BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH CURRENT NEWPORT NEWS REGULATIONS. LIGHTING SHALL BE DIRECTED INWARD TO THE SITE AND SHIELD SO AS NOT TO ILLUMINATE OR PROVIDE GLARE ONTO ADJACENT PROPERTIES AND/OR CITY RIGHT-OF-WAYS."
5. PRIOR TO CONSTRUCTION WITHIN ANY CITY RIGHT-OF-WAY, THE CONTRACTOR SHALL OBTAIN A RIGHT-OF-WAY PERMIT FROM THE DEPARTMENT OF ENGINEERING. THE OWNER/DEVELOPER OR THEIR REPRESENTATIVE SHALL PROVIDE AN ITEMIZED COST OF ANY WORK WITHIN THE CITY RIGHT-OF-WAY. A TRAFFIC CONTROL PLAN SHALL BE PROVIDED FOR REVIEW AND APPROVAL.
6. ALL PROPOSED ON-SITE PAVEMENT MARKINGS SHALL BE REFLECTORIZED TYPE A (PAINT) OR TYPE B (PREFORMED OR THERMOPLASTIC MATERIAL) IN ACCORDANCE WITH THE LATEST EDITION OF THE VDOT ROAD AND BRIDGE SPECIFICATIONS. PARKING SPACES SHALL BE DELINEATED BY 4" WHITE LINES, (FEDERAL STANDARD COLOR #595-17886 OR EQUIVALENT), HANDICAPPED PARKING SPACES SHOULD BE DELINEATED BY 4" BLUE LINES (BENNETE'S PAINT BLUE WAVE Q13-28T OR EQUIVALENT) FOR SPACES AND SYMBOLS, FIRE LANES AND PARCEL PICK-UP MARKINGS SHALL BE 4" YELLOW (FEDERAL STANDARD COLOR #595-13538 OR EQUIVALENT).
7. ALL PROPOSED PAVEMENT MARKINGS WITHIN CITY RIGHT-OF-WAY SHALL BE REFLECTORIZED TYPE B (PREFORMED OR THERMOPLASTIC MATERIAL) IN ACCORDANCE WITH THE LATEST EDITION OF THE VDOT ROAD AND BRIDGE SPECIFICATIONS AND AS OUTLINED IN THE CITY OF NEWPORT NEWS/DEPARTMENT OF ENGINEERING'S "PAVEMENT MARKINGS - MATERIALS AND APPLICATIONS" SPECIFICATIONS EXCEPT AS OTHERWISE NOTED HEREIN. FEDERAL STANDARD COLOR #595-17886 OR EQUIVALENT SHALL DELINEATE WHITE MARKINGS, HANDICAPPED PARKING SPACES SHALL BE DELINEATED BY BENNETE'S PAINT BLUE WAVE Q13-28T OR EQUIVALENT FOR SPACES/SYMBOLS AND FEDERAL STANDARD COLOR #595-13538 OR EQUIVALENT SHALL DELINEATE YELLOW MARKINGS. PERMANENT MARKINGS ARE TO BE SPOTTED AND FIELD VERIFIED BY THE CITY PRIOR TO INSTALLATION BY THE CONTRACTOR.
8. ALL TRAFFIC SIGNAGE AND PAVEMENT MARKINGS SHALL MEET THE FABRICATION AND/OR INSTALLATION REQUIREMENTS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), 2009 EDITION.
9. ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM WITH VDOT STANDARDS AND SPECIFICATIONS, VDOT ROAD AND BRIDGES STANDARDS AND SPECIFICATIONS, LATEST EDITION OF THE HAMPTON ROADS PLANNING DISTRICT COMMISSION (HRPDC) REGIONAL CONSTRUCTION STANDARDS, VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS AND ANY OTHER APPLICABLE CITY OR STATE ORDINANCES, CODES AND LAW PRIOR TO ANY CONSTRUCTION ACTIVITY.
10. A PRE-CONSTRUCTION MEETING IS REQUIRED. CONTRACTOR SHALL CONTACT THE CONSTRUCTION INSPECTOR FOR THE DEPARTMENT OF ENGINEERING, AT 926-8601. CONSTRUCTION INSPECTION IS TO INSPECT THE SITE BEFORE ANY CLEARING BEGINS.
11. A LAND DISTURBANCE PERMIT IS REQUIRED. PRIOR TO ANY LAND DISTURBANCE ACTIVITY ALL TREE PROTECTION FENCING MUST BE IN PLACE AND INSPECTED BY A DEPARTMENT OF ENGINEERING INSPECTOR.
12. ALL PROPOSED PVC SANITARY SEWER PIPE AND FITTINGS SHALL BE ASTM 3034 SDR 26.
13. ALL PROPOSED DUCTILE IRON SANITARY SEWER PIPE SHALL BE MINIMUM THICKNESS CLASS 52.
14. ALL PROPOSED DUCTILE IRON SANITARY SEWER FORCE MAIN COMPACT FITTINGS SHALL HAVE A MINIMUM ACCEPTABLE PRESSURE RATING OF 250 PSI.
15. ALL SANITARY SEWER GRAVITY PIPES PLACED BELOW 10 FEET IN COVER OR LESS THAN 3 FEET IN COVER SHALL BE DUCTILE IRON.
16. A CITY OF NEWPORT NEWS STANDARD CLEANOUT SHALL BE PLACED AT THE CITY RIGHT-OF-WAY FOR ALL SANITARY SEWER LATERALS.
17. ANY SANITARY SEWER GRAVITY LINE THAT CROSSES A WATER LINE WITH 18 INCHES OR LESS OF VERTICAL SEPARATION SHALL BE DUCTILE IRON.
18. ANY SANITARY SEWER GRAVITY LINE THAT RUNS PARALLEL TO A WATER LINE WITH LESS THAN 10 FEET OF SEPARATION, THE LINE SHALL BE DUCTILE IRON.
19. THERE SHALL BE NO STORM WATER LINE CONNECTIONS TO THE SANITARY SEWER SYSTEM.

CITY OF NEWPORT NEWS GENERAL NOTES (CONTINUED):

20. FIRE HYDRANTS MUST BE LOCATED SO THAT AT LEAST ONE OF THE HYDRANT DISTANCES WILL REACH THE REAR OF THE BUILDING. THE REQUIRED DISTANCES OF THE FIRE HYDRANTS, AS WELL AS THE REQUIRED FIRE FLOW, IS SET BY THE CURRENT EDITION OF THE WATER DESIGN STANDARDS OF NEWPORT NEWS WATERWORKS. MINIMUM FIRE HYDRANT SPACING IS CURRENTLY EVERY 400' FOR COMMERCIAL / INDUSTRIAL APPLICATION, AND EVERY 600' FOR RESIDENTIAL.
21. THE HYDRANT DISTANCES SHALL BE MEASURED BY AN APPROVED ROUTE AROUND THE EXTERIOR OF THE FACILITY OR BUILDING, AND SHALL BE MEASURED ALONG THE NATURAL AND UNOBSTRUCTED PATH OF VEHICLE TRAVEL.
22. THE DIRECTOR OF ENGINEERING OR HIS AUTHORIZED REPRESENTATIVE SHALL STOP ALL SITE CONSTRUCTION, IMPROVEMENTS AND/OR ALTERATIONS IN THE EVENT OF ANY DEVIATION FROM THE APPROVED PLAN OR ON THE DISCOVERY OF UNEXPECTED ADVERSE IMPACTS OF THE DEVELOPMENT ACTIVITY ON ADJACENT PROPERTY OR PUBLIC FACILITIES.
23. IDENTIFY THE LOCATION OF ANY FENCING, TEMPORARY OR PERMANENT, OR ANY OTHER POTENTIAL OBSTRUCTIONS TO HYDRANTS, FIRE DEPARTMENT CONNECTIONS OR FIRE LANES.
24. ANY BUSHES, TREES, FENCING, ETC. SHALL BE A MINIMUM OF 3 FEET FROM FIRE HYDRANTS AND OTHER FIRE SUPPRESSION EQUIPMENT.
25. CANOPIES MUST BE A MINIMUM VERTICAL CLEARANCE OF 13 FEET 6 INCHES IF THEY PENETRATE INTO A FIRE LANE/FIRE ACCESS ROAD.
26. FDC'S SHALL BE LOCATED ON A STREET FRONT, A MINIMUM OF 40 FEET FROM THE BUILDING, AND NO MORE THAN 100 FEET FROM A FIRE HYDRANT.
27. PLANS FOR AUTOMATIC SPRINKLER SYSTEMS SHALL BE REVIEWED & APPROVED PRIOR TO INSTALLATION THROUGH NEWPORT NEWS DEPARTMENT OF CODES COMPLIANCE.
28. THE FIRE APPARATUS ACCESS ROAD SHALL EXTEND TO WITHIN 150 FEET OF ALL PORTIONS OF THE BUILDING AND ALL PORTIONS OF THE EXTERIOR WALLS OF THE FIRST STORY OF THE BUILDING AS MEASURED BY AN APPROVED ROUTE AROUND THE EXTERIOR OF THE BUILDING/FACILITY. (CERTAIN EXCEPTIONS, SUCH AS A FIRE SPRINKLER SYSTEM, MAY APPLY.)
29. FIRE APPARATUS ACCESS ROADS SHALL HAVE AN UNOBSTRUCTED WIDTH OF NOT LESS THAN 20 FEET AND AN UNOBSTRUCTED VERTICAL CLEARANCE OF 13 FEET 6 INCHES.
30. WITHIN LANDSCAPING AND GREEN AREAS, HEALTHY EXISTING TREES OF A MINIMUM 6" DIAMETER AT BREAST HEIGHT, MEASURED AT LEAST 4.5' ABOVE GRADE, FOR SINGLE STEMMED, DECIDUOUS TREES, AND A MINIMUM OF 8' IN HEIGHT FOR MULTI-STEMMED OR EVERGREEN TREES, SHALL BE RETAINED, PRESERVED AND PROTECTED DURING CONSTRUCTION.
31. THE PROPERTY OWNER OR DEVELOPER, AS APPLICABLE, SHALL BE RESPONSIBLE FOR THE PERPETUATION AND MAINTENANCE OF ALL SITE IMPROVEMENTS, INCLUDING LANDSCAPING, REQUIRED BY CHAPTER 33.02 SITE REGULATIONS AND AS SHOWN ON THE APPROVED PLAN.
32. ALL EXISTING TREES TO REMAIN, LOCATED WITHIN 50' OF THE LIMITS OF CONSTRUCTION, MUST BE TREE PROTECTED IN ACCORDANCE WITH SECTION 33.02-51(B)(1)(E) SITE REGULATIONS ORDINANCE OF THE CITY OF NEWPORT NEWS, VIRGINIA.
33. PRIOR TO INSTALLATION OF THE LANDSCAPING MATERIALS, AN INSPECTION WITH THE DEPARTMENT OF ENGINEERING INSPECTOR IS REQUIRED. PLEASE CONTACT THE SITE AND SUBDIVISION OFFICE AT 926-8601.
34. THE FIRE CODE OFFICIAL IS AUTHORIZED TO REQUIRE MORE THAN ONE FIRE APPARATUS ACCESS ROAD BASED ON OCCUPANCY USE, LOCATION, ETC.
35. THE FIRE CODE OFFICIAL SHALL HAVE THE AUTHORITY TO REQUIRE AN INCREASE IN THE MINIMUM ACCESS WIDTHS WHERE THEY ARE INADEQUATE FOR FIRE, RESCUE, OR LADDER SUPPRESSION OPERATIONS.
36. FIRE APPARATUS ACCESS ROADS SHALL BE DESIGNED AND MAINTAINED TO SUPPORT THE IMPOSED LOAD OF FIRE APPARATUS AND SHALL BE SURFACED TO ACCOMMODATE ALL WEATHER DRIVING CONDITIONS. (THE CURRENT MINIMUM WEIGHT LOAD UTILIZED FOR FIRE APPARATUS CALCULATION IS 80,000 POUNDS.)
    - THE REQUIRED TURNING RADIUS OF A FIRE APPARATUS ACCESS ROAD SHALL BE DETERMINED BY THE FIRE CODE OFFICIAL. (THE CURRENT MINIMUM TURNING RADIUS FOR FIRE APPARATUS IS 29'.)
    - DEAD END FIRE APPARATUS ROADS IN EXCESS OF 150 FEET IN LENGTH SHALL BE PROVIDED WITH AN APPROVED AREA FOR TURNING AROUND FIRE APPARATUS.
    - MINIMUM WIDTH OF ALL FIRE LANES SHALL BE 20 FEET UNLESS OTHERWISE APPROVED BY THE FIRE CODE OFFICIAL. FIRE LANES SHALL BE SURFACED TO ACCOMMODATE ALL WEATHER DRIVING CONDITIONS.
    - AN APPROVED WATER SUPPLY FOR FIRE PROTECTION, EITHER TEMPORARY OR PERMANENT, SHALL BE MADE AVAILABLE AS SOON AS COMBUSTIBLE MATERIAL ARRIVES ON SITE.
37. APPROVED VEHICLE ACCESS FOR FIREFIGHTING SHALL BE PROVIDED TO ALL CONSTRUCTION OR DEMOLITION SITES. VEHICLE ACCESS SHALL BE PROVIDED TO WITHIN 100 FEET OF TEMPORARY OR PERMANENT FIRE DEPARTMENT CONNECTIONS. VEHICLE ACCESS SHALL BE PROVIDED BY EITHER TEMPORARY OR PERMANENT ROADS, CAPABLE OF SUPPORTING VEHICLE LOADING UNDER ALL WEATHER CONDITIONS. VEHICLE ACCESS SHALL BE MAINTAINED UNTIL PERMANENT FIRE APPARATUS ACCESS ROADS ARE AVAILABLE.

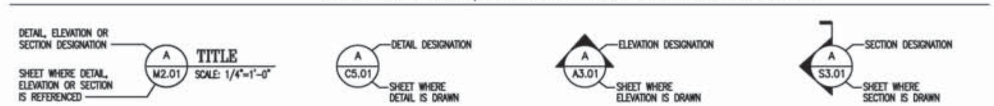
CIVIL ABBREVIATIONS

(NOT ALL SYMBOLS MAY BE SHOWN ON PLANS)

AASHTO	AMERICAN ASSOCIATION OF HIGHWAY TRANSPORTATION OFFICIALS
AR/AW	AIR RELEASE/AIR VACUUM VALVE
ARV	AIR RELEASE VALVE
ALT	ALTERNATE
ASSY	ASSEMBLY
@	AT
AVE	AVENUE
BV	BALL VALVE
BF	BLIND FLANGE
BO	BLOW OFF
BLVD	BOULEVARD
BFV	BUTTERFLY VALVE
CI	CAST IRON
℄	CENTER LINE
CV	CHECK VALVE
CL	CLASS
CLR	CLEARANCE
CONC	CONCRETE
CONN	CONNECTION
CORP STOP	CORPORATION STOP
CY	CUBIC YARD
DIA	DIAMETER
DR	DRIVE
DI	DUCTILE IRON
DIP	DUCTILE IRON PIPE
DWG	DRAWING
DWGS	DRAWINGS
ESMT	EASEMENT
E	EAST
EB	EAST BOUND
EBL	EAST BOUND LANE
ECC	ECCENTRIC
EOP	EDGE OF PAVEMENT
EL	ELEVATION
EW	EACH WAY
EXIST, EXST	EXISTING
FO	FIBER OPTIC
FIG	FIGURE
FWM	FINISHED WATER MAIN
FLG	FLANGE
FT	FOOT, FEET
FM	FORCE MAIN
GAL	GALLON
GS	GALVANIZED STEEL
GV	GATE VALVE
HB	HORIZONTAL BEND
HEX	HEXAGON
ID	INSIDE DIAMETER
INV	INVERT
IRR	IRRIGATION LINE
JT	JOINT
LF	LINEAR FOOT, FEET
LG	LONG
MB	MAILBOX
MFR	MANUFACTURER
MH	MANHOLE
MAR	MANUAL AIR RELEASE
MAX	MAXIMUM
MSL	MEAN SEA LEVEL
MJ	MECHANICAL JOINT
MIN	MINIMUM
NPT	NATIONAL AMERICAN TAPER PIPE THREAD
N	NORTH
NB	NORTH BOUND
NBL	NORTH BOUND LANE
NITC	NOT IN THIS CONTRACT
NTS	NOT TO SCALE
NO	NUMBER
O.A.E.	OR APPROVED EQUAL
OC	ON CENTER
OD	OUTSIDE DIAMETER
OS&Y	OUTSIDE SCREW AND YOKE
PKWY	PARKWAY
PRV	PRESSURE REGULATED VALVE
P	PROPERTY LINE
PROP	PROPOSED
RWTM	RAW WATER TRANSMISSION MAIN
RCP	REINFORCED CONCRETE PIPE
REQ'D	REQUIRED
RMA	RESOURCE MANAGEMENT AREA
RPA	RESOURCE PROTECTION AREA
RJ	RESTRAINED JOINT
ROW	RIGHT OF WAY
RD	ROAD
SAN	SANITARY
SFM	SANITARY FORCE MAIN
SS	SANITARY SEWER OR STAINLESS STEEL
SCHED, SCH	SCHEDULE
S	SEWER OR SOUTH
SB	SOUTH BOUND
SBL	SOUTH BOUND LANE
SQ	SQUARE
SY	SQUARE YARD
S.S.	STAINLESS STEEL
STD	STANDARD
STA	STATION
STL	STEEL
SD	STORM DRAIN
ST	STORM SEWER
STRUCT	STRUCTURAL
SCV	SURGE CHECK VALVE
TJB	TELEPHONE JUNCTION BOX
TS	TEST STATION
TBA	TO BE ABANDONED
TBD	TO BE DETERMINED
TOS	TOP OF SLAB
TRANS	TRANSMISSION MAIN
TYP, TP	TYPICAL
UD	UNDER DRAIN
UGE	UNDERGROUND ELECTRIC
USGS	UNITED STATES GEOLOGICAL SURVEY
VB	VERTICAL BEND
VDOT	VIRGINIA DEPARTMENT OF TRANSPORTATION
W	WATER OR WEST
WM	WATER MAIN OR WATER METER
WSC	WATER SERVICE CONNECTION
WB	WEST BOUND
WBL	WEST BOUND LANE
W/	WITH
W/O	WITHOUT

CIVIL LEGEND

KEY FOR DETAIL, ELEVATION AND SECTIONAL SYMBOLS



DETAIL, ELEVATION OR SECTION DRAWING — DETAIL REFERENCE — ELEVATION REFERENCE — SECTION REFERENCE

OLD DOMINION UTILITY SERVICES INCORPORATED 2023 HARRISON ROAD FORT EUSTIS, VIRGINIA 23604	WR&A WHITMAN, REQUARDT & ASSOCIATES, LLP 11870 Merchants Walk, Suite 100, Newport News, VA 23606	90% SUBMITTAL NOT TO BE USED FOR CONSTRUCTION 2/19/2013 — OLD DOMINION UTILITY SERVICES 2023 HARRISON ROAD FORT EUSTIS, VIRGINIA, 23604 — FEBRUARY 2013	SCALE: NONE	OLD DOMINION UTILITY SERVICES ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION	GENERAL NOTES, ABBREVIATIONS, AND LENGEND	REV / DATE / DESCRIPTION — DRAWING G1.01 — SHEET 2

GENERAL NOTES

UTILITIES

1. ALL SEWER AND WATER CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CONTRACT DRAWINGS, SPECIFICATIONS AND OLD DOMINION UTILITY SERVICES SPECIFICATIONS.
2. THE CONTRACTOR SHALL CONTACT THE OLD DOMINION UTILITY SERVICES AT LEAST 48 HOURS PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY TO SCHEDULE A PRE CONSTRUCTION MEETING. ALL WORK SHALL BE SUBJECT TO INSPECTION BY OLD DOMINION UTILITY SERVICES INSPECTORS.
3. THE PROJECT WAS DEVELOPED UTILIZING THE OLD DOMINION UTILITY SERVICES GIS DATABASE AND ABOVE GRADE STRUCTURES. THE CONTRACT DOCUMENTS DO NOT GUARANTEE THE EXISTENCE, NON-EXISTENCE OR LOCATION OF UTILITIES. THE CONTRACTOR SHALL, ON HIS OWN INITIATIVE, LOCATE ALL EXISTING UNDERGROUND LINES, FACILITIES AND STRUCTURES AS REQUIRED AND TAKE NECESSARY PRECAUTIONS TO PROTECT THEM. ANY DAMAGE TO EXISTING UTILITIES, UNDERGROUND LINES, FACILITIES AND STRUCTURES CAUSED BY THE CONTRACTOR OR ITS SUBCONTRACTORS SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY AND REPAIRED AT THE CONTRACTOR'S EXPENSE.
4. THE CONTRACTOR SHALL NOTIFY MISS UTILITY (1-800-552-7001) AT LEAST 72 HOURS PRIOR TO STARTING CONSTRUCTION ACTIVITIES REQUIRING EXCAVATION.
5. WHEN THE WORK CROSSES EXISTING UTILITIES, THE EXISTING UTILITIES SHALL BE ADEQUATELY SUPPORTED AND PROTECTED FROM DAMAGE DUE TO THE WORK AT NO ADDITIONAL COST. ALL METHODS FOR SUPPORTING AND MAINTAINING THE EXISTING UTILITIES SHALL BE APPROVED BY THE RESPECTIVE UTILITY COMPANY AND/OR OLD DOMINION UTILITY SERVICES. CONTRACTOR SHALL EXERCISE CARE TO INSURE THAT THE GRADE AND ALIGNMENT OF EXISTING UTILITIES ARE MAINTAINED AND THAT NO JOINTS OR CONNECTIONS ARE DISPLACED. BACKFILL SHALL BE CAREFULLY PLACED AND COMPACTED TO PREVENT FUTURE DAMAGE OR SETTLEMENT TO EXISTING UTILITIES. ANY UTILITIES REMOVED AS PART OF THE WORK, AND NOT INDICATED TO BE REMOVED OR ABANDONED, SHALL BE RESTORED USING MATERIALS AND INSTALLATION EQUAL TO THE UTILITY'S STANDARDS.
6. CONTRACTOR SHALL NOTIFY OLD DOMINION UTILITY SERVICES 2 WEEKS PRIOR TO THE INTERRUPTION OF ANY SERVICES. SERVICE INTERRUPTIONS SHALL BE KEPT TO A MINIMUM.
7. OVERHEAD CABLES HAVE NOT BEEN SHOWN ON THE DRAWINGS OR ARE SHOWN APPROXIMATELY. THE CONTRACTOR IS REQUIRED TO COMPLY WITH THE VIRGINIA OVERHEAD HIGH VOLTAGE LINE SAFETY ACT (SECTIONS 59.1-406 THROUGH 59.1-414, CODE OF VIRGINIA, 1950 AS AMENDED). THE CONTRACTOR IS REQUIRED TO VISIT THE SITE AND NOTE THE POSITION OF OVERHEAD CABLES AND OTHER FEATURES PRIOR TO SUBMITTING HIS BID.
8. FINAL ACCEPTANCE OF THE WORK BY THE OLD DOMINION UTILITY SERVICES SHALL NOT BE MADE UNTIL ALL WORK SHOWN ON THE APPROVED PLANS IS COMPLETED.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AND REPLACING ANY EXISTING STRUCTURES, LANDSCAPING, ETC. DAMAGED OR REMOVED DURING CONSTRUCTION AT THE CONTRACTOR'S EXPENSE.
10. THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL, STATE, VDH, DEQ, AND FEDERAL REQUIREMENTS APPLICABLE TO THE CONSTRUCTION OF THIS PROJECT.
11. SHOULD THE CONTRACTOR COME ACROSS EXISTING CONNECTIONS TO THE WATERMAIN THAT WERE NOT SHOWN ON THE PLANS, HE SHALL VERIFY IF THE LINE IS ACTIVE. IF THE LINE IS ACTIVE, HE SHALL RECONNECT THE SERVICE TO THE PROPOSED WATERMAIN.
12. ALL VALVES IN PAVED AREAS SHALL BE ANCHORED. VALVES 8" AND LARGER SHALL BE ANCHORED REGARDLESS OF LOCATION (SEE DETAIL SHEET C-13).
13. THE CONTRACTOR SHALL COORDINATE WITH OTHER SITE CONTRACTORS DURING CONSTRUCTION AND FOR TIE-IN ELEVATION.
14. ALL POST INDICATOR VALVES SHALL COME EQUIPPED WITH TAMPER SWITCHES. THE CONDUIT SHALL BE "BY OTHERS". COORDINATE WITH SITE CONTRACTOR.

EROSION CONTROL & WORK AREA PROTECTION AND MAINTENANCE

1. UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE TO THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK.
2. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP TO LAND DISTURBING ACTIVITIES AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE.
3. CONTRACTOR SHALL PLACE ADDITIONAL SILT FENCE AROUND ALL SOIL AND GRAVEL STOCKPILES.
4. ALL DISTURBED AREAS ARE TO DRAIN TO SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.
5. DURING DEWATERING OPERATIONS, WATER SHALL BE PUMPED INTO AN APPROVED FILTERING DEVICE. EFFLUENT SHALL BE DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY EFFECT FLOWING STREAMS OR OFF-SITE PROPERTIES.
6. CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY, AT NO ADDITIONAL COST TO THE CONTRACT.
7. AT THE COMPLETION OF CONSTRUCTION AND UPON THE ESTABLISHMENT OF VEGETATION, ALL SEDIMENT CONTROLS SHALL BE REMOVED.
8. UNLESS OTHERWISE NOTED, UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:
   A. NO MORE THAN 300 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME
   B. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.
   C. RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND APPLICABLE STANDARDS.
   D. APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH.
9. IN GENERAL, ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED DAILY AND AFTER EACH SIGNIFICANT RAINFALL. THE CONTRACTOR SHALL PERFORM THE DETAILED MAINTENANCE INSTRUCTIONS OUTLINED IN THE HANDBOOK FOR EACH STRUCTURAL AND VEGETATIVE MEASURE PROVIDED. THE FOLLOWING ITEMS SHALL BE CHECKED IN PARTICULAR:
   A. EROSION CONTROL STRUCTURES SHALL BE CLEANED WHEN THEY REACH 50% CAPACITY.
   B. SEEDED AREAS SHALL BE CHECKED REGULARLY TO ENSURE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED, RESEEDED AND MULCHED AS NEEDED.
   C. ALL ADJACENT ROADWAYS SHALL BE KEPT CLEAN. FILL SHALL NOT BE SPILLED INTO THE ROADWAY.
   D. THE CONTRACTOR SHALL PROVIDE DUST CONTROL AS REQUIRED.
   E. THE AREAS OF CONSTRUCTION SHALL REMAIN IN STABLE CONDITIONS AT THE CLOSE OF EACH DAY. EROSION CONTROLS SHALL BE MONITORED AT THIS TIME, MAINTAINED AND REPAIRED OR REPLACED IF NECESSARY.
   F. AN ADEQUATE RESERVE OF EROSION CONTROL MATERIALS SHALL BE ON SITE AT ALL TIMES FOR EMERGENCY OR ROUTINE REPLACEMENT AND SHALL INCLUDE MATERIAL TO REPAIR SILT FENCES AND OTHER DEVICES USED TO STABILIZE THE SITES.
   G. THE CONTRACTOR SHALL PROTECT THE EXISTING MANHOLES, ETC. FROM BEING COVERED.
10. TOPSOIL AND SEEDING REQUIREMENTS ARE AS FOLLOWS:
   A. THE CONTRACTOR SHALL PROVIDE PERMANENT SEEDING FOR ALL, BUT NOT LIMITED TO, DISTURBED LAWN AREAS, GRASS MEDIANS, GRASS LINED AND VEGETATIVE LINED DITCHES, ETC.
   B. TOPSOILS, SEEDING RATES, FERTILIZER AND TOPSOIL PREPARATION REQUIREMENTS ARE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
11. CONTRACTOR SHALL, AT HIS EXPENSE, MAINTAIN THE WORK SITE IN A CLEAN AND ORDERLY APPEARANCE AT ALL TIMES. ALL DEBRIS AND SURPLUS MATERIAL COLLECTED SHALL BE DISPOSED OF OFF THE WORK SITE BY CONTRACTOR, AT HIS EXPENSE.
12. EXISTING LAWNS, TREES, SHRUBS, FENCES, UTILITIES, CULVERTS, WALLS, WALKS, DRIVEWAYS, POLES, SIGNS, RIGHT-OF-WAY MONUMENTS, MAILBOXES AND THE LIKE SHALL BE PROTECTED FROM DAMAGE DURING THE WORK. ANY DAMAGE CAUSED TO SUCH ITEMS SHALL BE REPAIRED OR REPLACED BY CONTRACTOR AT NO ADDITIONAL COST.
13. THE CONTRACTOR SHALL REPAIR OR REPLACE IN LIKE KIND ANY LANDSCAPING DISTURBED BY CONSTRUCTION ACTIVITIES.
14. CONTRACTOR SHALL EMPLOY EROSION CONTROL DEVICES AND METHODS AS REQUIRED. CONTRACTOR SHALL PROVIDE THE NECESSARY DIVERSION DITCHES, DIKES, TEMPORARY CULVERTS, AND SILT FENCE REQUIRED TO PREVENT MUD AND DEBRIS FROM BEING WASHED ONTO THE STREETS OR PROPERTY. CONTRACTOR'S VEHICLES SHALL BE KEPT CLEAN TO PREVENT MUD OR DUST FROM BEING DEPOSITED ON STREETS.
15. CONTRACTOR SHALL CLEAN UP, RESTORE, SEED AND MAINTAIN ALL DISTURBED AREAS IMMEDIATELY UPON COMPLETION OF WORK ON EACH SITE. TOPSOIL, SEED, FERTILIZER AND MULCH SHALL BE PLACED IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION ON ALL DISTURBED AREAS. A PERMANENT STAND OF GRASS ADEQUATE TO PREVENT EROSION SHALL BE ESTABLISHED ON ALL AREAS NOT RECEIVING PAVEMENT PRIOR TO FINAL ACCEPTANCE.
16. AS DETERMINED BY OLD DOMINION UTILITY SERVICES, ANY DEFECTIVE, FAULTY, CRACKED OR BROKEN SIDEWALKS, DRIVEWAYS, HANDICAP RAMPS OR CURB & GUTTER AS A RESULT OF THIS CONSTRUCTION SHALL BE REMOVED AND REPLACED PRIOR TO FINAL ACCEPTANCE. NO ADDITIONAL PAYMENT WILL BE MADE FOR SUCH WORK.

EARTHWORK AND SITE CONDITIONS

1. UNLESS OTHERWISE NOTED ON THE PLANS OR IN THE SPECIFICATIONS, ALL FILL MATERIALS SHALL BE COMPACTED TO 95% OF THEORETICAL MAXIMUM DENSITY AS DETERMINED BY AASHTO T-99 METHOD A, WITHIN PLUS OR MINUS 2% OF OPTIMUM MOISTURE, FOR THE FULL WIDTH AND DEPTH OF THE FILL. ALL FILL MATERIAL UNDER PAVED AREAS SHALL BE VDOT #21B CRUSHED STONE, APPROVED SOIL, OR SELECTED MATERIAL, 95% COMPACTED IN STRUCTURAL SPACE OR 85% COMPACTED IN GREEN SPACE WITH CBR OF 30, COMPACTED IN 8 INCH DEEP LIFTS AS DIRECTED BY OLD DOMINION UTILITY SERVICES OR AUTHORIZED REPRESENTATIVE.
2. ALL MATERIALS AND INSTALLATION DETAILS SHALL CONFORM TO OLD DOMINION UTILITY SERVICES STANDARDS AND ALL OTHER APPLICABLE ORDINANCES.
3. ANY UNUSUAL OR UNANTICIPATED SUBSURFACE CONDITIONS SHALL BE IMMEDIATELY REPORTED TO OLD DOMINION UTILITY SERVICES.
4. CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND LOCATIONS PRIOR TO BEGINNING WORK, AND IMMEDIATELY NOTIFY OLD DOMINION UTILITY SERVICES OF HIS DESIGNEE IN THE EVENT THERE ARE ANY DISCREPANCIES BETWEEN SUCH CONDITIONS AND THOSE SHOWN ON THE PLANS AND SPECIFICATIONS.

CONCRETE AND ASPHALT

1. ALL MATERIAL INSIDE FORMS SHALL BE CLEAN AND FREE OF ALL ROCKS AND OTHER LOOSE DEBRIS. SUB-BASE MATERIAL SHALL BE COMPACTED BY MECHANICAL MEANS. REMOVE ALL STANDING WATER FROM AREA INSIDE FORMS.
2. CONCRETE SHALL NOT BE PLACED UNLESS THE AIR TEMPERATURE IS AT LEAST 40 FAHRENHEIT IN THE SHADE AND RISING. CONCRETE SHALL NOT BE PLACED ON FROZEN SUBGRADE.
3. CONCRETE SHALL NOT BE PLACED UNTIL STEEL DOWELS HAVE BEEN INSTALLED IN EXISTING CONCRETE IN ACCORDANCE WITH THE VIRGINIA DEPARTMENT OF TRANSPORTATION STANDARDS.
4. ALL EXISTING CURBS, CURB & GUTTER AND SIDEWALK TO BE REMOVED, OR DAMAGED BY THE CONTRACTOR SHALL BE TAKEN OUT TO THE NEAREST JOINT.
5. EXISTING ASPHALT CONCRETE PAVEMENT SHALL BE SAW CUT AND REMOVED PER THE SPECIFICATIONS. REMOVAL SHALL BE DONE IN SUCH A MANNER AS TO NOT TEAR, BULGE OR DISPLACE ADJACENT PAVEMENT. EDGES SHALL BE CLEAN AND VERTICAL, IN A SINGLE RECTANGULAR SHAPE AND ALL CUTS SHALL BE PARALLEL OR PERPENDICULAR TO THE DIRECTION OF TRAFFIC.
6. DISPOSAL OF ALL EXCESS MATERIAL IS THE RESPONSIBILITY OF THE CONTRACTOR, AND SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.
7. PAVEMENT RESTORATION SHALL BE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

DRAINAGE

1. CONTRACTOR SHALL EXERCISE CARE, ESPECIALLY AT INTERSECTIONS AND GUTTER LINES, TO PROVIDE POSITIVE DRAINAGE. ANY AREAS WHERE WATER IS IMPOUNDED AS A RESULT OF THIS CONSTRUCTION SHALL BE CORRECTED BY CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. POSITIVE DRAINAGE OF ALL ROADWAY AREAS TO THE STORM DRAIN INLETS OR OTHER ACCEPTABLE DRAINAGE CHANNELS SHALL BE MAINTAINED AT ALL TIMES.
2. CONTRACTOR SHALL MAINTAIN EXISTING STREAMS, DITCHES, DRAINAGE STRUCTURES, CULVERTS AND FLOWS AT ALL TIMES DURING THE WORK. CONTRACTOR SHALL PAY FOR ALL PERSONAL INJURY AND PROPERTY DAMAGE WHICH MAY OCCUR AS A RESULT OF FAILING TO MAINTAIN ADEQUATE DRAINAGE.
3. ALL PIPES, DRAINAGE INLETS AND OTHER STRUCTURES UNCOVERED DURING CONSTRUCTION SHALL BE INSPECTED BY OLD DOMINION UTILITY SERVICES BEFORE BEING BACKFILLED OR BURIED. OLD DOMINION UTILITY SERVICES MAY REQUIRE CONTRACTOR, AT NO ADDITIONAL COST, TO UNCOVER AND RE-COVER SUCH STRUCTURES IF THEY HAVE BEEN BACKFILLED OR BURIED WITHOUT SUCH INSPECTION.

VEGETATION

1. PRIOR TO REMOVING ANY TREES, CONTRACTOR SHALL MEET OLD DOMINION UTILITY SERVICES TO REVIEW THE LIMITS OF CONSTRUCTION AND OBTAIN PERMISSION TO REMOVE TREES REQUIRED TO DO THE WORK.
2. TREE AND PLANT ROOTS OR BRANCHES THAT MAY INTERFERE WITH THE WORK SHALL BE TRIMMED OR CUT ONLY WITH THE APPROVAL OF OLD DOMINION UTILITY SERVICES. ANY TREES OR PLANTS WHICH ARE SHOWN TO REMAIN THAT DO NOT INTERFERE WITH THE WORK, BUT ARE DAMAGED BY CONTRACTOR OR HIS SUBCONTRACTORS, SHALL BE REPAIRED OR REPLACED BY CONTRACTOR AT NO ADDITIONAL COST.

TRAFFIC AND SIGNAGE

1. THE CONTRACTOR SHALL MAINTAIN VEHICULAR AND PEDESTRIAN ACCESS ALONG THE PROJECT ALIGNMENT.
2. THE CONTRACTOR SHALL MAINTAIN EXISTING TRAFFIC PATTERNS WHEN POSSIBLE. IF CONSTRUCTION ACTIVITIES DEEM NECESSARY, THE CONTRACTOR SHALL UTILIZE TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH THE FEDERAL, STATE AND LOCAL AGENCIES TO MAINTAIN SAFE TRAFFIC FLOW.
3. CONTRACTOR SHALL NOTIFY OLD DOMINION UTILITY SERVICES 2 WEEKS IN ADVANCE OF BLOCKING ANY ENTRANCE. NO ENTRANCE SHALL BE BLOCKED MORE THAN TWELVE (12) HOURS IN ANY 24 HOUR PERIOD WITHOUT APPROVAL OF OLD DOMINION UTILITY SERVICES.
4. THE CONTRACTOR SHALL DEVELOP AND SUBMIT A TRAFFIC CONTROL PLAN WHERE REQUIRED DUE TO PIPELINE LOCATION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEVELOPING A DETOUR PLAN AND INCLUDING THE PROPOSED DETOUR PLAN IN THE TRAFFIC CONTROL PLANS. ROADWAY CLOSURE SHALL ALSO BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (LATEST EDITION).
5. THE CONTRACTOR SHALL COMPLY WITH THE VIRGINIA WORK AREA PROTECTION MANUAL AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

PERMITS

1. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS, INSPECTIONS, BONDS AND OTHER APPROVAL RELATED ITEMS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, LOCAL, STATE AND FEDERAL POLICIES.

COMPACTION TESTING AND INSPECTION

1. CONTRACTOR SHALL EXCAVATE UNSUITABLE AND/OR UNSATISFACTORY SOIL MATERIALS ENCOUNTERED AS DIRECTED BY GEOTECHNICAL INSPECTOR.
2. GEOTECHNICAL INSPECTOR SHALL APPROVE SUBGRADE AND EACH FILL LAYER. THE DEGREE OF COMPACTION OBTAINED SHALL BE FIELD VERIFIED BY MEANS OF FIELD DENSITY TESTS MADE BY INDEPENDENT LABORATORY. WHERE TESTS INDICATE A DEFICIENCY IN DEGREE OF COMPACTION, THE CONTRACTOR SHALL CORRECT SUCH CONDITIONS AND THE TESTING LABORATORY SHALL MAKE ADDITIONAL TESTS IN ORDER TO VERIFY THAT THE CORRECTED WORK IS SATISFACTORY.
3. THE OWNER SHALL PERFORM COMPACTION TESTING AT INCREMENTS OF 100 LF OF TRENCH PER LIFT(8")
4. CONTRACTOR SHALL COMPACT EACH LAYER OF FILL MATERIAL OR BACKFILL TO NOT LESS THAN THE FOLLOWING PERCENTAGES OF THE MAXIMUM DRY DENSITY AS DETERMINED BY MODIFIED PROCTOR ASTM D1557(AASHTO T-99). COMPACT SOIL MATERIALS USING EQUIPMENT SUITABLE FOR MATERIALS TO BE COMPACTED AND WORK AREA LOCATIONS.
   A. 95% BENEATH AND WITHIN 10 FEET OF BUILDING AND STRUCTURES INCLUDING THOSE SHOWN FOR FUTURE CONSTRUCTION.
   B. 95% BENEATH PAVEMENT, WALKS, ROADWAYS, AND ROAD SHOULDERS, INCLUDING THOSE SHOWN FOR FUTURE CONSTRUCTION.
   C. 85% IN OTHER UNPAVED AREAS.

OLD DOMINION UTILITY SERVICES
INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

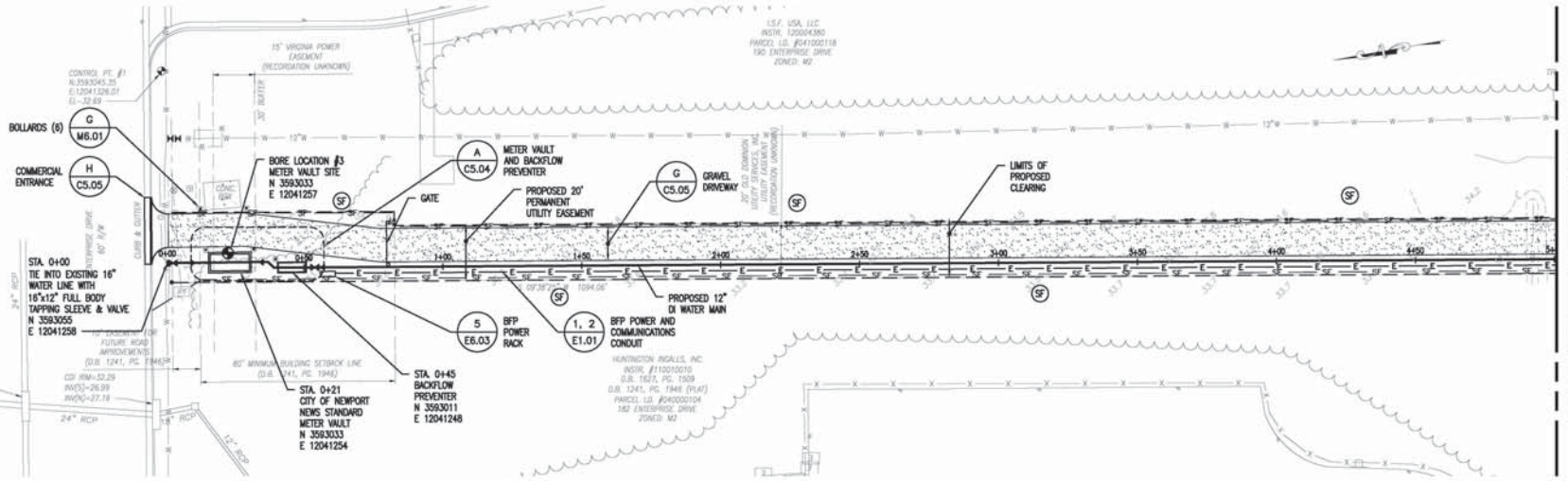
WHITMAN, REQUARDT & ASSOCIATES, LLP
11870 Merchants Walk, Suite 100, Newport News, VA 23606

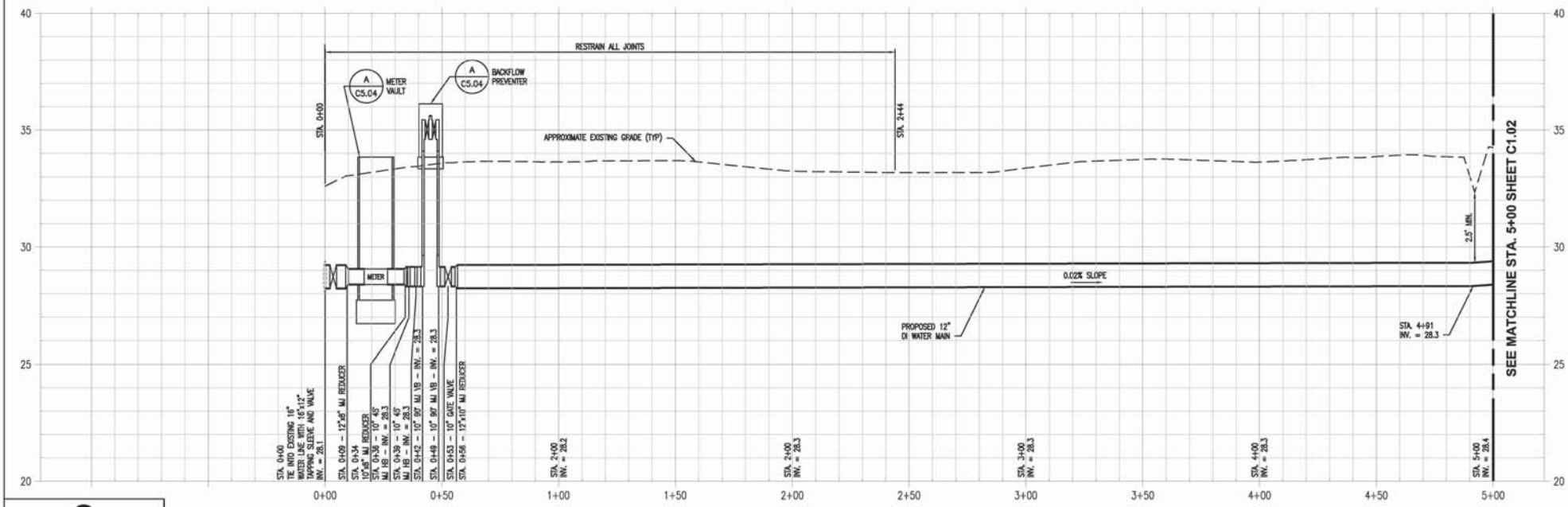
90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

OLD DOMINION UTILITY SERVICES 2023 HARRISON ROAD FORT EUSTIS, VIRGINIA, 23604 FEBRUARY 2013	SCALE NONE	OLD DOMINION UTILITY SERVICES ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION	OLD DOMINION UTILITY SERVICES GENERAL NOTES	DRAWING G1.02	SHEET 3

REV	DATE	DESCRIPTION

NOTES:
1. BACKFLOW PREVENTER WILL NEED POWER DROP TO SUPPORT HEATERS AND SCADA.
2. BACKFLOW PREVENTER – PROVIDE NEMA 4 ENCLOSURE FOR LOG BOOK.
3. CONTRACTOR SHALL REMOVE ALL TREES WITHIN 20' EASEMENT AREA.
4. CONTRACTOR SHALL PERFORM TEST PITS ON ALL EXISTING UTILITIES PRIOR TO EXCAVATION.
5. SLOPE WATER MAIN EVENLY TO HIGH POINTS SHOWN IN PROFILE.
6. TIE–IN TO EXISTING 16" WATER MAIN SHALL BE PERFORMED BY A NEWPORT NEWS WATER WORKS APPROVED CONTRACTOR AND IN ACCORDANCE WITH NEWPORT NEWS WATER WORKS DISTRIBUTION STANDARDS.





OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

WHITMAN, REQUARDT & ASSOCIATES, LLP
1870 Merchants Walk, Suite 100, Newport News, VA 23606

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

SCALE: 1" = 20'
SCALE: 1" = 2'

REV	DATE	DESCRIPTION

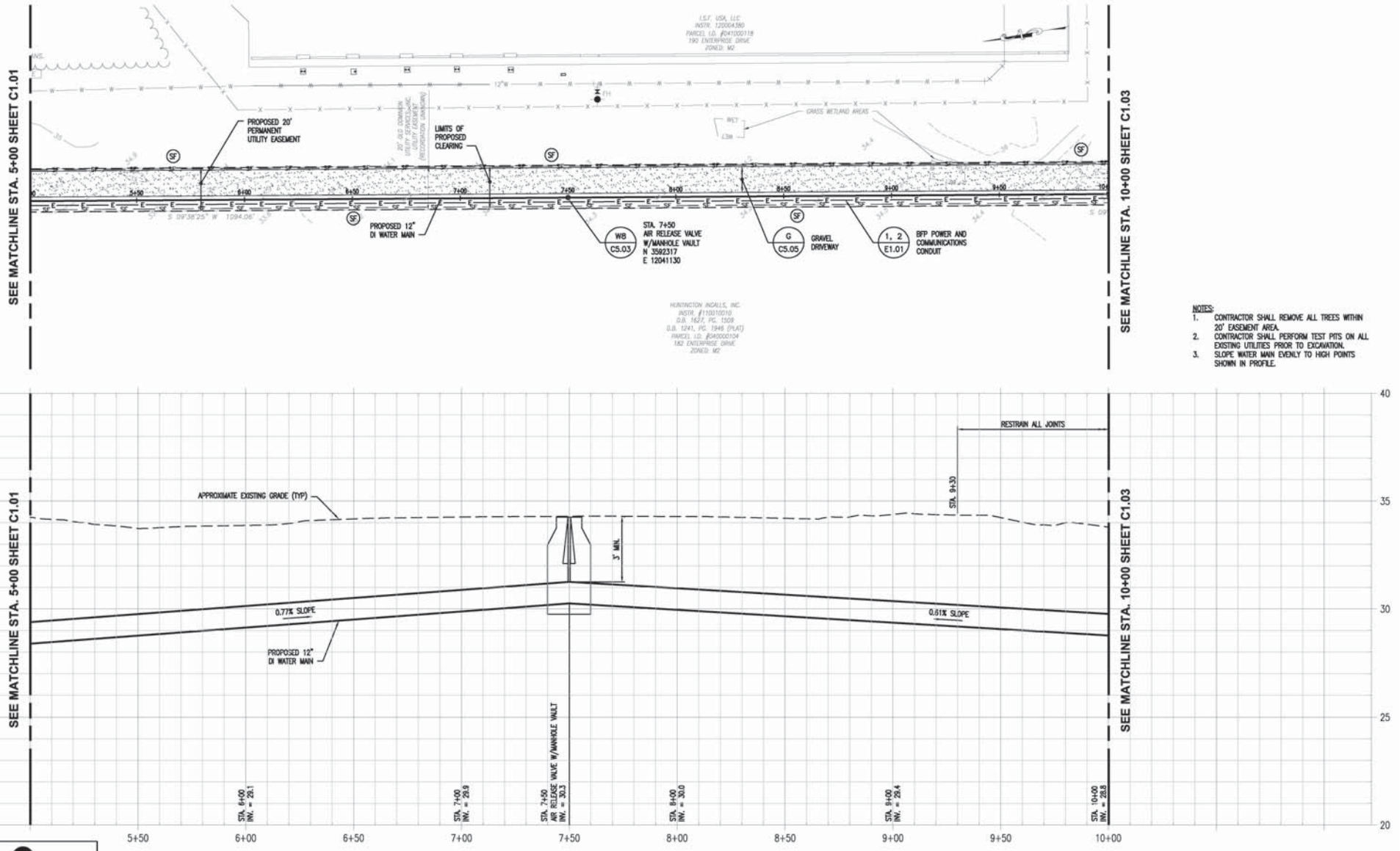
OLD DOMINION UTILITY SERVICES
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA, 23604
FEBRUARY 2013

SCALE
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 2'

OLD DOMINION UTILITY SERVICES
ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION

PLAN AND PROFILE
STA. 0+00 TO STA. 5+00

DRAWING: C1.01
SHEET: 4



NOTES:
1. CONTRACTOR SHALL REMOVE ALL TREES WITHIN 20' EASEMENT AREA.
2. CONTRACTOR SHALL PERFORM TEST PITS ON ALL EXISTING UTILITIES PRIOR TO EXCAVATION.
3. SLOPE WATER MAIN EVENLY TO HIGH POINTS SHOWN IN PROFILE.

OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

WHITMAN, REQUARDT & ASSOCIATES, LLP
11870 Merchants Walk, Suite 100, Newport News, VA 23606

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

SCALE: 1" = 20'
SCALE: 1" = 2'

REV	DATE	DESCRIPTION

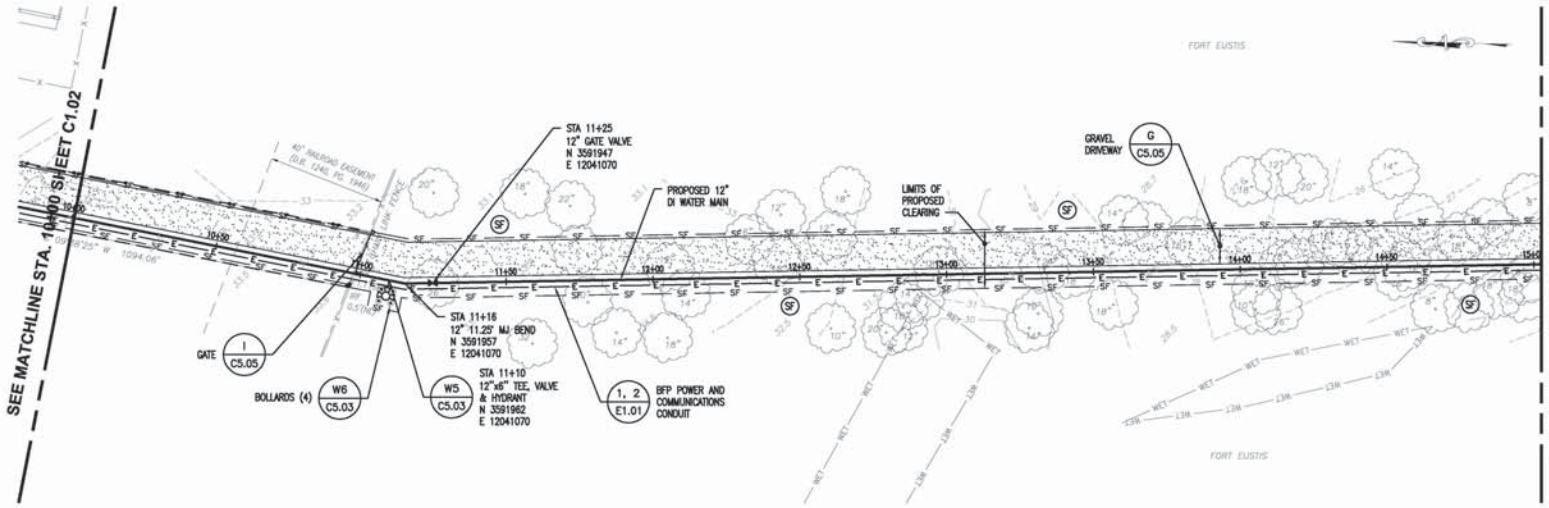
OLD DOMINION UTILITY SERVICES
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA, 23604
FEBRUARY 2013

SCALE
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 2'

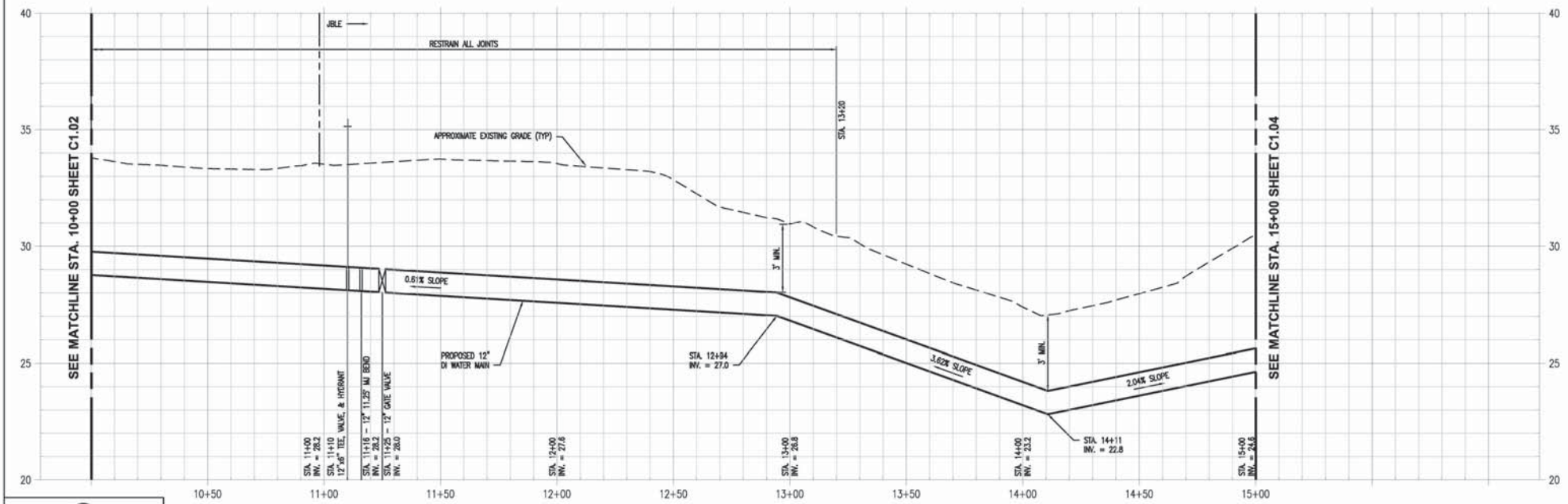
OLD DOMINION UTILITY SERVICES
ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION

PLAN AND PROFILE
STA. 5+00 TO STA. 10+00

DRAWING: C1.02
SHEET: 5



NOTES:
1. CONTRACTOR SHALL REMOVE ALL TREES WITHIN 20' EASEMENT AREA.
2. CONTRACTOR SHALL PERFORM TEST PITS ON ALL EXISTING UTILITIES PRIOR TO EXCAVATION.
3. SLOPE WATER MAIN EVENLY TO HIGH POINTS SHOWN IN PROFILE.



OLD DOMINION UTILITY SERVICES
INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

WHITMAN, REQUARDT & ASSOCIATES, LLP
1870 Merchants Walk, Suite 100, Newport News, VA 23606

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

SCALE: 1" = 20'

SCALE: 1" = 2'

REV	DATE	DESCRIPTION

OLD DOMINION UTILITY SERVICES
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA, 23604
FEBRUARY 2013

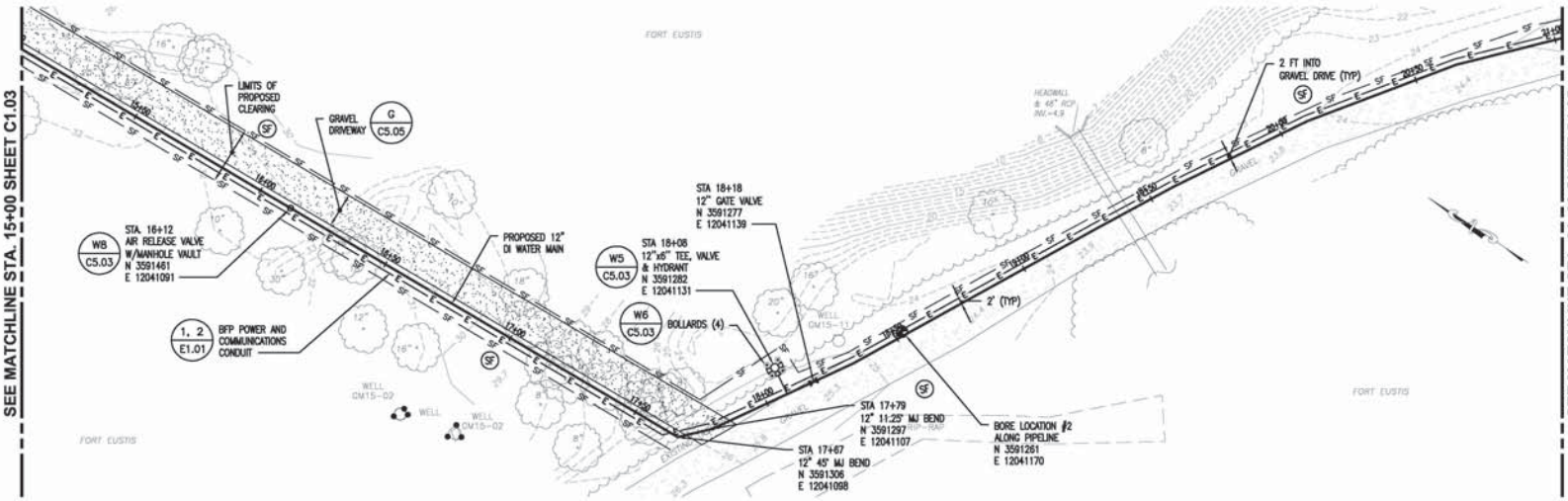
SCALE
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 2'

OLD DOMINION UTILITY SERVICES
ALTERNATE WATER SUPPLY LINE
AND BOOSTER STATION

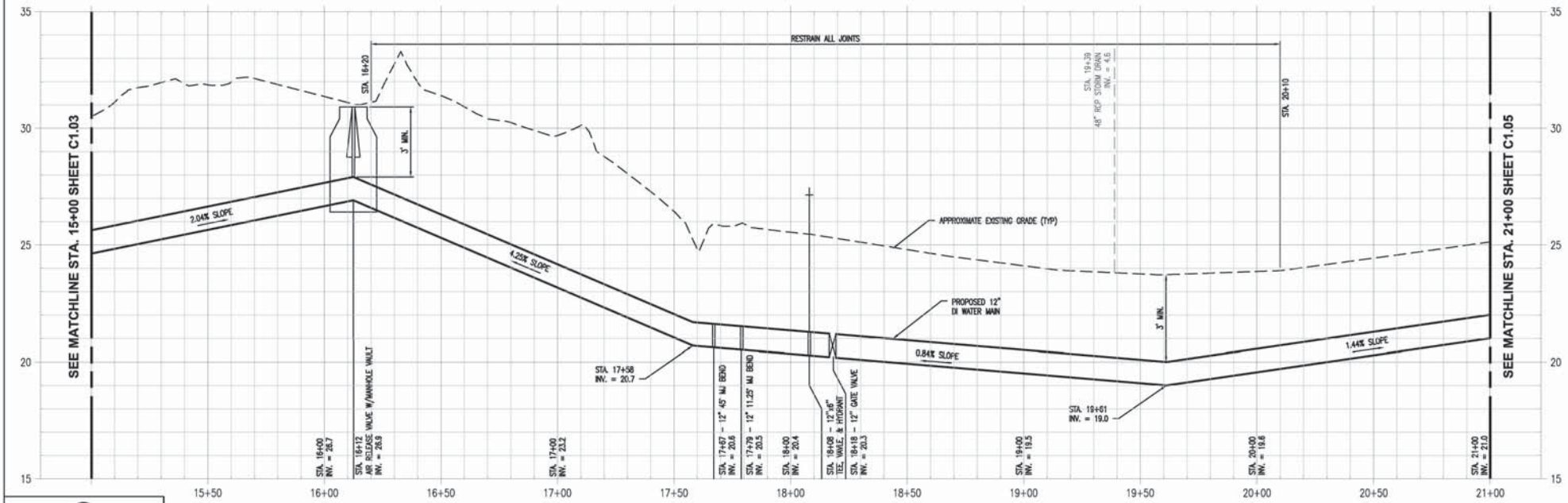
PLAN AND PROFILE
STA. 10+00 TO STA. 15+00

DRAWING: C1.03

SHEET: 6



NOTES:
1. CONTRACTOR SHALL REMOVE ALL TREES WITHIN 20' EASEMENT AREA.
2. CONTRACTOR SHALL PERFORM TEST PITS ON ALL EXISTING UTILITIES PRIOR TO EXCAVATION.
3. SLOPE WATER MAIN EVENLY TO HIGH POINTS SHOWN IN PROFILE.



OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

WR&A
WHITMAN, REQUARDT & ASSOCIATES, LLP
1870 Merchants Walk, Suite 100, Newport News, VA 23606

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

SCALE: 1" = 20'
SCALE: 1" = 2'

REV	DATE	DESCRIPTION

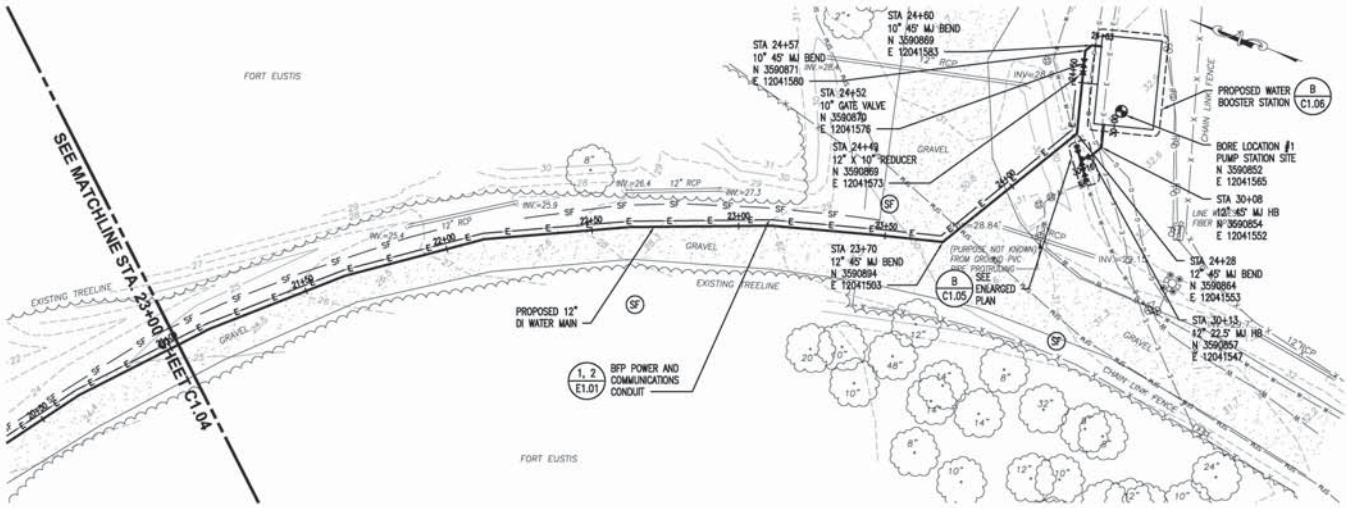
OLD DOMINION UTILITY SERVICES
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA, 23604
FEBRUARY 2013

SCALE
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 2'

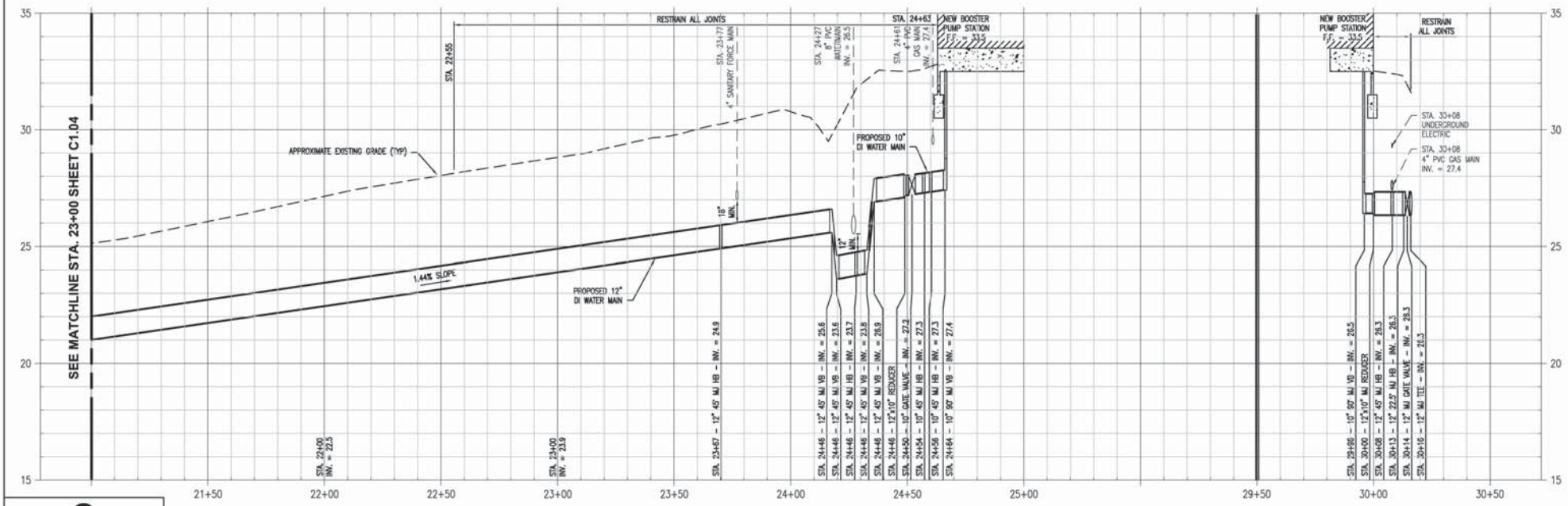
OLD DOMINION UTILITY SERVICES
ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION

PLAN AND PROFILE
STA. 15+00 TO STA. 21+00

DRAWING: C1.04
SHEET: 7



NOTES:
1. CONTRACTOR SHALL PERFORM TEST PITS ON ALL EXISTING UTILITIES PRIOR TO EXCAVATION.
2. SLOPE WATER MAIN EVENLY TO HIGH POINTS SHOWN IN PROFILE.



OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

WHITMAN, REQUARDT & ASSOCIATES, LLP
1870 Merchants Walk, Suite 100, Newport News, VA 23606

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

SCALE: 1" = 20'
SCALE: 1" = 2'

REV	DATE	DESCRIPTION

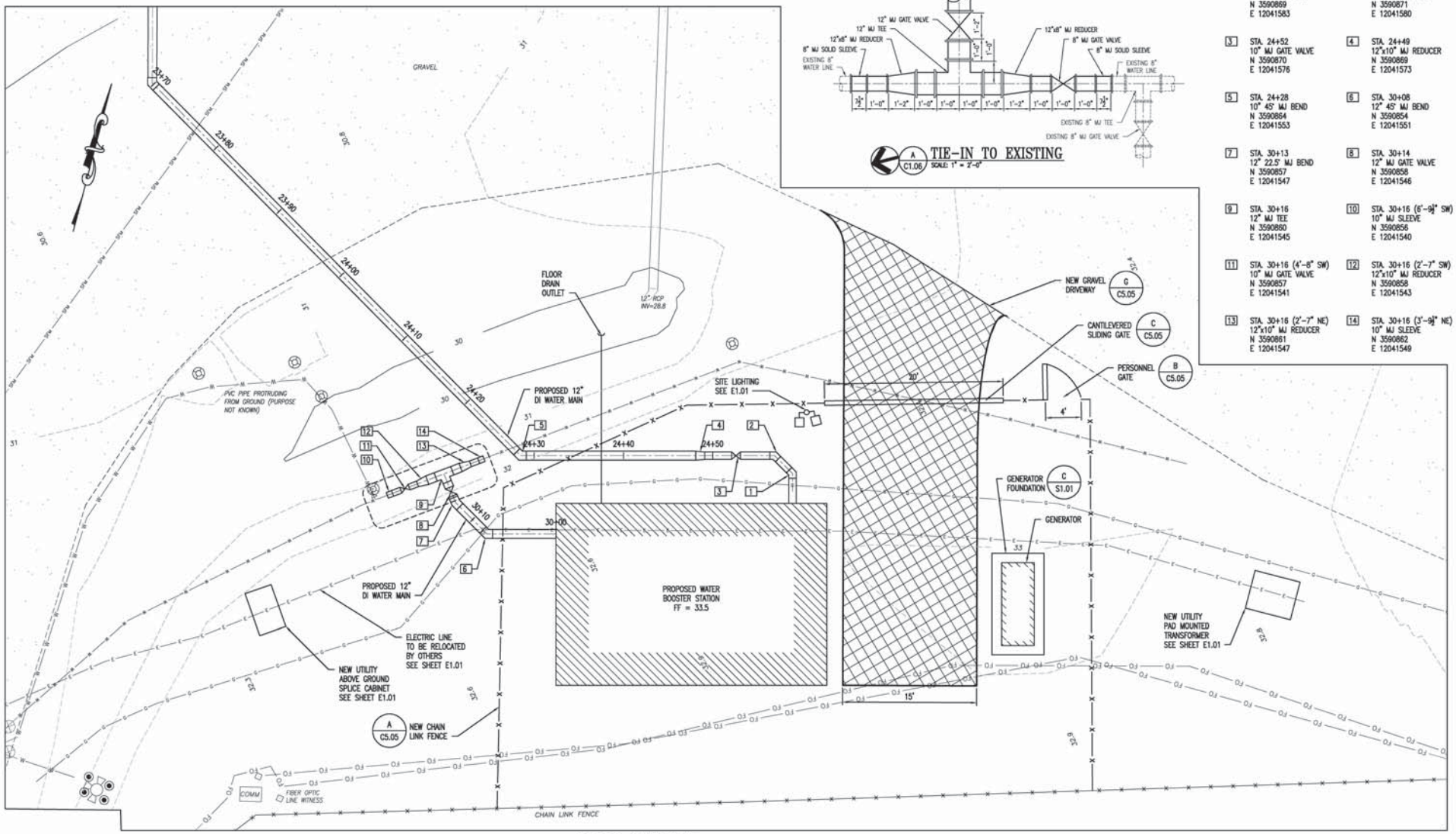
OLD DOMINION UTILITY SERVICES
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA, 23604
FEBRUARY 2013

SCALE
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 2'

OLD DOMINION UTILITY SERVICES
ALTERNATE WATER SUPPLY LINE
AND BOOSTER STATION

PLAN AND PROFILE
STA. 21+00 TO STA. 25+00

DRAWING: C1.05
SHEET: 8



OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

WR&A
WHITMAN, REQUARDT & ASSOCIATES, LLP
1870 Merchants Walk, Suite 100, Newport News, VA 23606

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

SCALE: 1" = 5'

SCALE: 1" = 2'

REV	DATE	DESCRIPTION

OLD DOMINION UTILITY SERVICES 2023 HARRISON ROAD FORT EUSTIS, VIRGINIA, 23604 FEBRUARY 2013	SCALE AS NOTED	OLD DOMINION UTILITY SERVICES ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION	CIVIL BOOSTER STATION SITE PLAN	DRAWING C1.06	SHEET 9

PROJECT DESCRIPTION

THE PROJECT WORK GENERALLY CONSISTS OF THE CONSTRUCTION OF A 12 INCH WATER MAIN AND WATER BOOSTER PUMP STATION.

EXISTING SITE CONDITIONS

THE WORK WILL BE CONSTRUCTED ON GOVERNMENT PROPERTY AND IN UTILITY EASEMENTS.

GENERAL EROSION AND SEDIMENT CONTROL NOTES

ALL EROSION AND SEDIMENT CONTROL (ESC) MEASURES MUST BE PLACED PRIOR TO, OR AS THE FIRST STEP IN GRADING. THE PRELIMINARY LIMITS OF DISTURBANCE MUST BE THE MINIMUM NECESSARY TO ALLOW INSTALLATION OF THE ESC MEASURES AND SHOULD INCLUDE ALL AREAS NECESSARY FOR INSTALLING THE INITIAL ESC MEASURES, INCLUDING STOCKPILES, BORROW AREAS, STAGING AREAS, ETC. DISTURBANCE OUTSIDE OF THE PRELIMINARY LIMITS OF LAND DISTURBANCE MAY NOT OCCUR UNTIL THE CITY INSPECTOR HAS APPROVED THE ESC MEASURE INSTALLATION.

IF ADDITIONAL ESC DEVICES ARE FOUND NECESSARY DURING CONSTRUCTION, THEY MUST BE INSTALLED AS DIRECTED BY THE CITY.

UNLESS OTHERWISE APPROVED BY THE CITY INSPECTOR, ALL RUNOFF MUST DRAIN TO A SEDIMENT BASIN OR TRAP DURING ALL PHASES OF CONSTRUCTION.

ALL ESC DEVICES MUST BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE LATEST VERSION OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND THE VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS.

DEWATERING OF EXCAVATED TRENCHES, SEDIMENT BASINS/TRAPS, ETC. MUST BE DONE IN ACCORDANCE WITH STD. & SPEC. 3.26 – DEWATERING STRUCTURE, IN THE LATEST VERSION OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK. THE CITY INSPECTOR MUST APPROVE THE METHOD PRIOR TO BEGINNING DEWATERING.

EROSION AND SEDIMENT CONTROL SEQUENCE

1. NO LAND DISTURBING ACTIVITIES SHALL BEGIN UNTIL AFTER THE ISSUANCE OF A LAND DISTURBANCE PERMIT AND INSTALLATION OF EROSION AND SEDIMENT CONTROL DEVICES.
2. REMOVE EXISTING DEBRIS AS NECESSARY AND HAUL TO APPROPRIATE DISPOSAL SITE.
3. INSTALL CONSTRUCTION ENTRANCE, SILT FENCE, SAFETY FENCE, AND OTHER EROSION AND SEDIMENT CONTROL MEASURES AS AS SHOWN ON THE PLANS.
4. UPON COMPLETION OF WORK AS STATED IN GENERAL NOTES, APPLY PERMANENT SEEDING AND RESTORE ALL DISTURBED AREAS.
5. ALL EROSION CONTROL DEVICES SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION FOR THEIR INTENDED PURPOSE. SHOULD DEVICES FAIL OR BECOME INEFFECTIVE, THEY SHALL BE REPLACED WITH NEW MATERIALS AS DEEMED NECESSARY BY THE OWNER OR ENGINEER.
6. WHEN DISTURBED AREAS ARE STABILIZED TO THE SATISFACTION OF THE INSPECTORS, AND THE ENGINEER, REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES.

EROSION AND SEDIMENT CONTROL MEASURES

UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK.

STRUCTURAL PRACTICES

1. (SF) SILT FENCE – 3.05
   SILT FENCE SHALL BE USED IN THOSE AREAS WHERE MINOR SHEET FLOW DRAINAGE WILL OCCUR.
2. (CE) TEMPORARY STONE CONSTRUCTION ENTRANCE – 3.02
   A STABILIZED STONE PAD WITH FILTER FABRIC UNDERLINER LOCATED AT POINTS OF VEHICULAR INGRESS AND EGRESS ON A CONSTRUCTION SITE.

VEGETATIVE PRACTICES

1. (PS) PERMANENT SEEDING – 3.32
   UPON COMPLETION OF FINAL GRADING AND OPERATIONS, ALL DISTURBED AREAS (NOT DESIGNATED FOR OTHER SURFACE RESTORATIONS) SHALL BE PERMANENTLY SEEDED IN ACCORDANCE WITH SECTION 02930.
2. (DC) DUST CONTROL – 3.39
   REDUCING SURFACE AND AIR MOVEMENT OF DUST DURING LAND DISTURBING, DEMOLITION, AND CONSTRUCTION ACTIVITIES.

STORM WATER MANAGEMENT

EXISTING STORM WATER RUNOFF WILL NOT BE INCREASED WITHIN THE CONSTRUCTION AREA.

MAINTENANCE

IN GENERAL, ALL EROSION AND SEDIMENT CONTROL MEASURES WILL BE CHECKED DAILY AND AFTER EACH SIGNIFICANT RAINFALL. MAINTENANCE SHALL CONTINUE THE LENGTH OF THE PROJECT. EROSION AND SEDIMENT CONTROL MEASURES SHALL NOT BE REMOVED WITHOUT THE APPROVAL OF CITY OF NEWPORT NEWS ENVIRONMENTAL INSPECTOR. THE FOLLOWING ITEMS WILL BE CHECKED IN PARTICULAR:

1. THE SILT FENCES WILL BE CHECKED REGULARLY FOR SEDIMENT CLEAN OUT.
2. ALL SEEDED AREAS WILL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHALL BE FERTILIZED AND RE-SEEDED AS NEEDED.
3. NO EROSION AND SEDIMENT CONTROL MEASURES CAN BE REMOVED WITHOUT THE APPROVAL OF THE CITY.

SILT FENCE NOTES

SILT FENCE AND FILTER FABRIC MUST BE ENTRENCHED.

POSTS FOR SILT FENCES SHALL BE EITHER 2 INCH DIAMETER OAK, 4 INCH DIAMETER PINE OR 1.33 POUNDS PER LINEAR FOOT STEEL. POSTS WILL BE A MINIMUM OF 5 FEET IN LENGTH. STEEL POSTS SHALL HAVE PROJECTIONS FOR FASTENING WIRE TO THEM.

WHEN EXTRA STRENGTH FILTER FABRIC AND CLOSER POST SPACING ARE USED, THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED. IN SUCH A CASE, THE FILTER FABRIC IS STAPLED OR WIRED DIRECTLY TO THE POST.

SILT FENCE SHALL BE REMOVED UPON COMPLETION OF THE PROJECT.

City of Newport News
EROSION AND SEDIMENT CONTROL GENERAL NOTES:

1. THE CONTRACTOR SHALL COMPLY WITH THE CURRENT LAWS AND REGULATIONS OF THE CITY OF NEWPORT NEWS, THE COMMONWEALTH OF VIRGINIA, AND AS DEEMED NECESSARY BY THE DIRECTOR OF ENGINEERING BEFORE, DURING, AND AFTER CONSTRUCTION ON THE SITE. ALL MINIMUM STANDARDS AND SPECIFICATIONS REGARDING THE INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE FOLLOWED BY THE CONTRACTOR.
2. A LAND DISTURBANCE PERMIT IS REQUIRED FOR THE PROJECT AND SHALL BE OBTAINED IN THE ENGINEERING DEPT., 8TH FLOOR OF CITY HALL. A RESPONSIBLE LAND DISTURBER SHALL BE IDENTIFIED ON ALL LAND DISTURBANCE PERMITS. FAILURE TO COMPLY WITH ANY OF THESE REQUIREMENTS IDENTIFIED HERE WILL INITIATE A NOTICE TO COMPLY (NTC), NOTICE OF VIOLATION (NOV), STOP WORK ORDER (SWO) OR NULLIFY THE PERMIT.
3. ALL APPROPRIATE EROSION CONTROL MEASURES SUCH AS, BUT NOT LIMITED TO, TREE PROTECTION, SILT FENCE, CONSTRUCTION ENTRANCE, SEDIMENT TRAPPING FACILITIES, AND INLET PROTECTION SHALL BE INSTALLED PRIOR TO THE START OF CONSTRUCTION AND MUST BE REVIEWED AND APPROVED BY A CITY INSPECTOR BEFORE ANY CLEARING OPERATIONS BEGIN. THE CONTRACTOR OR OWNER MUST CONTACT THE CITY'S CONSTRUCTION INSPECTION DIVISION AT 269-2470 TO SCHEDULE ALL INSPECTIONS.
4. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN AND LAND DISTURBANCE PERMIT MUST BE MAINTAINED AT THE SITE FOR THE DURATION OF ALL CONSTRUCTION AND LAND-DISTURBING ACTIVITIES.
5. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL APPROVED MEASURES AS SHOWN ON THE DRAWINGS. ANY ADDITIONAL MEASURES DEEMED REQUIRED BY THE CITY DUE TO FIELD CONDITIONS SHALL BECOME PART OF THE EROSION AND SEDIMENT CONTROL PLAN FOR THE PROPERTY. ALL FIELD CHANGES MUST BE APPROVED BY EITHER THE CITY'S INSPECTOR OR ENGINEER PRIOR TO INSTALLATION. ALL APPROVED FIELD CHANGES SHALL BE SENT TO THE ENGINEERING DEPT. TO BE ATTACHED TO THE APPROVED PLAN.
6. DURING DEWATERING OPERATIONS, WATER SHALL BE PUMPED INTO AN APPROVED FILTERING DEVICE.
7. THE CONTRACTOR MAY NOT CHANGE OR ALTER ANY OF THE APPROVED MEASURES WITHOUT FIRST NOTIFYING THE CITY'S INSPECTOR OR ENGINEER. FAILURE TO DUE SO MAY RESULT IN A NOV, SWO AND/OR REVOCATION OF THE LAND DISTURBANCE PERMIT.
8. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL MEASURES TO PREVENT SOIL FROM ERODING ONTO ADJACENT PROPERTY, STREETS, DRAINAGE SYSTEMS, AND WATERWAYS. ALL DEVICES SHALL BE CLEANED OF MUD, DEBRIS, AND OTHER ERODED MATERIAL DURING THE SITE CLEARING AND DEVELOPMENT. INSPECTION OF DEVICES SHALL BE AT A MINIMUM EVERY TWO (2) WEEKS AND REQUIRED AFTER EVERY RAINFALL EVENT. ALL INSPECTION AND MAINTENANCE ACTIVITIES SHALL BE DOCUMENTED AND AVAILABLE FOR REVIEW AT THE CITY'S REQUEST.
9. TEMPORARY AND PERMANENT SEEDING OPERATIONS SHALL BE INITIATED WITHIN SEVEN (7) DAYS AFTER REACHING FINAL GRADE OR UPON SUSPENSION OF GRADING OPERATIONS FOR ANTICIPATED DURATION OF GREATER THAN THIRTY (30) DAYS OR UPON COMPLETION OF GRADING OPERATIONS FOR A SPECIFIC AREA.
10. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE KEPT IN PLACE FOR THE DURATION OF THE CLEARING AND CONSTRUCTION OPERATIONS AND AT A MAXIMUM FOR THE SPECIFIED TIME FOR EACH MEASURE AS IDENTIFIED IN THE VESC HANDBOOK, OR WHEN FULL STABILIZATION HAS OCCURRED FOR THE ENTIRE SITE. A FINAL INSPECTION BY THE CITY SHALL DETERMINE WHEN THIS FACT IS ACCOMPLISHED AND ALL TEMPORARY MEASURES AND DEVICES CAN BE REMOVED.
11. THE CONTRACTOR SHALL MONITOR AND TAKE PRECAUTIONS TO CONTROL DUST AND OTHER AIR POLLUTANTS, INCLUDING BUT NOT LIMITED TO USING WATER OR CHEMICALS, LIMITING THE NUMBER OF VEHICLES ALLOWED ON-SITE, MINIMIZING THE OPERATING SPEED OF ALL VEHICLES, ETC. ALSO, THE CONTRACTOR WILL BE RESPONSIBLE FOR THE DAILY SWEEPING OF PUBLIC RIGHT-OF-WAY SHOULD SEDIMENT ACCUMULATE ON PAVED SURFACES.
12. CONTRACTOR SHALL SUBMIT A SEPARATE EROSION AND SEDIMENT CONTROL PLAN FOR ANY OFF-SITE AREAS ASSOCIATED WITH THE LAND DISTURBANCE AND SOIL REMOVAL IDENTIFIED HEREIN. A SEPARATE SUBMITTAL IS NOT NECESSARY FOR THE FOLLOWING SITUATIONS:
    A. NO MATERIAL WILL BE HAULED OR TRANSPORTED OFF-SITE AND APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED AROUND ALL STOCKPILES AND STORAGE AREAS, OR
    B. ALL MATERIAL TO BE HAULED OR TRANSPORTED OFF-SITE WILL BE DEPOSITED AT A FEDERAL, STATE, AND LOCALLY APPROVED SITE. THE CONTRACTOR SHALL IDENTIFY ON THE PLANS WHAT DISPOSAL SITE WILL BE USED.
13. A VIRGINIA STORM WATER PERMIT (VSMP) WILL BE REQUIRED FOR LAND-DISTURBING ACTIVITIES OF ONE (1) ACRE OR GREATER AND ALL PROJECTS DISTURBING 2,500 SQUARE FEET OR GREATER IN DESIGNATED CHESAPEAKE BAY PRESERVATION AREAS (CBPA). IT IS THE OWNER'S AND/OR CONTRACTOR'S RESPONSIBILITY TO CONTACT THE DEPARTMENT OF CONSERVATION AND RECREATION (DCR) FOR PERMIT DETAILS, APPLICATION, AND APPROVALS.
14. LAND DISTURBING PERMIT DOES NOT RELIEVE THE OWNER/DEVELOPER FROM OBTAINING APPLICABLE FEDERAL, STATE, AND OTHER LOCAL PERMITS, OR FROM COMPLYING WITH PERTINENT FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS.

City of Newport News
EROSION AND SEDIMENT CONTROL MINIMUM STANDARDS:

1. PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN (7) DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN (7) DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN THIRTY (30) DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE (1) YEAR. ~~SEE DETAILS FOR SEEDING SCHEDULE.~~
2. ~~SOIL STOCKPILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. SEE PLANS AND DETAILS WHERE APPLICABLE.~~
3. A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION. ~~SEE DETAILS FOR SEEDING SCHEDULE.~~
4. ~~SEDIMENT BASINS AND TRAPS, PERIMETER DIKES, SEDIMENT BARRIERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND-DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE.~~
5. STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES, AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.
6. ~~SEDIMENT TRAPS AND SEDIMENT BASINS SHALL BE DESIGNED AND CONSTRUCTED BASED UPON TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP OR BASIN. SEE PLANS AND CALCULATIONS FOR DETAILS OF REQUIRED STRUCTURES.~~
   ~~a. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT TRAP SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA AND THE TRAP SHALL ONLY CONTROL DRAINAGE AREAS LESS THAN THREE (3) ACRES.~~
   ~~b. SURFACE RUNOFF FROM DISTURBED AREAS THAT IS COMPRISED OF FLOW FROM DRAINAGE AREAS GREATER THAN OR EQUAL TO THREE (3) ACRES SHALL BE CONTROLLED BY A SEDIMENT BASIN. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT BASIN SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA. THE OUTFALL SYSTEM SHALL, AT A MINIMUM, MAINTAIN THE STRUCTURAL INTEGRITY OF THE BASIN DURING A 25-YEAR STORM OF 24-HOUR DURATION. RUNOFF COEFFICIENTS USED IN RUNOFF CALCULATIONS SHALL CORRESPOND TO A BARE EARTH CONDITION OR THOSE CONDITIONS EXPECTED TO EXIST WHILE THE SEDIMENT BASIN IS UTILIZED.~~
7. CUT AND FILL SLOPES SHALL BE DESIGNED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES THAT ARE FOUND TO BE ERODING EXCESSIVELY WITHIN ONE (1) YEAR OF PERMANENT STABILIZATION SHALL BE PROVIDED WITH ADDITIONAL SLOPE STABILIZING MEASURES UNTIL THE PROBLEM IS CORRECTED.
8. CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME, OR SLOPE DRAIN STRUCTURE.
9. WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.
10. ~~ALL STORM SEWER INLETS THAT ARE MADE OPERATIONAL DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT-LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT. SEE DETAILS FOR MEASURES TO BE INSTALLED.~~
11. ~~BEFORE NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS OR PIPES ARE MADE OPERATIONAL, ADEQUATE OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT CHANNEL LINING SHALL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND RECEIVING CHANNEL. SEE PLANS FOR SPECIFIC LOCATIONS OF MEASURES.~~
12. ~~WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED, PRECAUTIONS SHALL BE TAKEN TO MINIMIZE ENCROACHMENT, CONTROL SEDIMENT TRANSPORT AND STABILIZE THE WORK AREA TO THE GREATEST EXTENT POSSIBLE DURING CONSTRUCTION. NONERODIBLE MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF CAUSEWAYS AND COFFERDAMS. EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF ARMORED BY NONERODIBLE COVER MATERIALS. SEE DETAILS ON SHEET ___.~~
13. WHEN A LIVE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES MORE THAN TWICE IN ANY SIX-MONTH PERIOD, A TEMPORARY VEHICULAR STREAM CROSSING CONSTRUCTED OF NONERODIBLE MATERIAL SHALL BE PROVIDED. SEE DETAILS ON SHEET ___.
14. ~~ALL APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE MET.~~
15. ~~THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED.~~
16. UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:
    a. NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.
    b. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.
    c. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.
    d. MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.
    e. RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THESE REGULATIONS.
    f. APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH.
17. WHERE CONSTRUCTION VEHICLES ACCESS ROUTES INTERSECT PAVED OR PUBLIC ROADS, PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICULAR TRACKING ONTO THE PAVED SURFACE. WHERE SEDIMENT IS TRANSPORTED ONTO A PAVED OR PUBLIC ROAD SURFACE, THE ROAD SURFACE SHALL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM THE ROADS BY SHOVELING OR SWEEPING AND TRANSPORTED TO A SEDIMENT CONTROL DISPOSAL AREA. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER. THIS PROVISION SHALL APPLY TO INDIVIDUAL DEVELOPMENT LOTS AS WELL AS TO LARGER LAND-DISTURBING ACTIVITIES.
18. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN THIRTY (30) DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, UNLESS OTHERWISE AUTHORIZED BY THE LOCAL PROGRAM AUTHORITY. TRAPPED SEDIMENT AND THE DISTURBED SOIL AREAS RESULTING FROM THE DEPOSITION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.
19. PROPERTIES AND WATERWAYS DOWNSTREAM FROM DEVELOPMENT SITES SHALL BE PROTECTED FROM SEDIMENT DEPOSITION, EROSION AND DAMAGE DUE TO INCREASES IN VOLUME, VELOCITY AND PEAK FLOW RATE OF STORMWATER RUNOFF FOR THE STATED FREQUENCY STORM OF 24-HOUR IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND CRITERIA:
    a. CONCENTRATED STORMWATER RUNOFF LEAVING A DEVELOPMENT SITE SHALL BE DISCHARGED DIRECTLY INTO AN ADEQUATE NATURAL OR MAN-MADE RECEIVING CHANNEL, PIPE OR STORM SEWER SYSTEM. FOR THOSE SITES WHERE RUNOFF IS DISCHARGED INTO A PIPE OR PIPE SYSTEM, DOWNSTREAM STABILITY ANALYSES AT THE OUTFALL OF THE PIPE OR PIPE SYSTEM SHALL BE PERFORMED.
    b. ADEQUACY OF ALL CHANNELS AND PIPES SHALL BE VERIFIED IN THE FOLLOWING MANNER:
        (1) DEMONSTRATE THAT THE TOTAL DRAINAGE AREA TO THE POINT OF ANALYSIS WITHIN THE CHANNEL IS ONE HUNDRED TIMES GREATER THAN THE CONTRIBUTING DRAINAGE AREA OF THE PROJECT; OR
        (2) NATURAL CHANNELS SHALL BE ANALYZED BY THE USE OF A 2-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP CHANNEL BANKS NOR CAUSE EROSION OF CHANNEL BED OR BANKS.

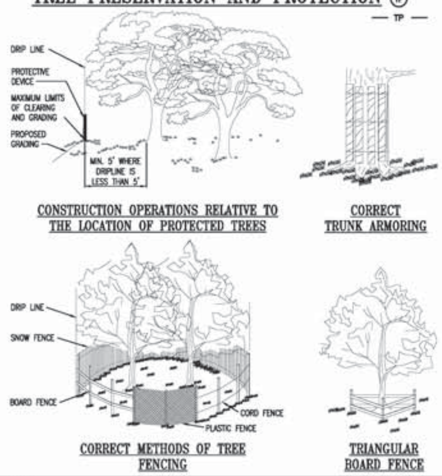
        ALL PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS SHALL BE ANALYZED BY THE USE OF A 10-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP ITS BANKS AND BY THE USE OF A 2-YEAR STORM TO DEMONSTRATE THAT STORMWATER WILL NOT CAUSE EROSION OF CHANNEL BED OR BANKS; AND

        PIPES AND STORM SEWER SYSTEMS SHALL BE ANALYZED BY THE USE OF A 10-YEAR STORM TO VERIFY THAT STORMWATER WILL BE CONTAINED WITHIN THE PIPE OR SYSTEM.

        (a) IF EXISTING NATURAL RECEIVING CHANNELS OR PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS OR PIPES ARE NOT ADEQUATE, THE APPLICANT SHALL:
            1) IMPROVE THE CHANNELS TO A CONDITION WHERE A 10-YEAR STORM WILL NOT OVERTOP THE BANKS AND A 2-YEAR STORM WILL NOT CAUSE EROSION TO THE CHANNEL BED OR BANKS; OR
            2) IMPROVE THE PIPE OR PIPE SYSTEM TO A CONDITION WHERE THE 10-YEAR STORM IS CONTAINED WITHIN THE APPURTENANCES;
            3) DEVELOP A SITE DESIGN THAT WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A 2-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A NATURAL CHANNEL OR WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A 10-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A MAN-MADE CHANNEL; OR
            4) PROVIDE A COMBINATION OF CHANNEL IMPROVEMENTS, STORMWATER DETENTION OR OTHER MEASURES WHICH IS SATISFACTORY TO THE PLAN-APPROVING AUTHORITY TO PREVENT DOWNSTREAM EROSION.
        (b) THE APPLICANT SHALL PROVIDE EVIDENCE OF PERMISSION TO MAKE THE IMPROVEMENTS.
        (c) ALL HYDROLOGIC ANALYSES SHALL BE BASED ON THE EXISTING WATERSHED CHARACTERISTICS AND THE ULTIMATE DEVELOPMENT OF THE SUBJECT PROJECT.
        (d) IF THE APPLICANT CHOOSES AN OPTION THAT INCLUDES STORMWATER DETENTION, HE/SHE SHALL OBTAIN APPROVAL FROM THE LOCALITY OF A PLAN FOR MAINTENANCE OF THE DETENTION FACILITIES. THE PLAN SHALL SET FORTH THE MAINTENANCE REQUIREMENTS OF THE FACILITY AND THE PERSON RESPONSIBLE FOR PERFORMING THE MAINTENANCE.
        (e) OUTFALL FROM A DETENTION FACILITY SHALL BE DISCHARGED TO A RECEIVING CHANNEL, AND ENERGY DISSIPATERS SHALL BE PLACED AT THE OUTFALL OF ALL DETENTION FACILITIES AS NECESSARY TO PROVIDE A STABILIZED TRANSITION FROM THE FACILITY TO THE RECEIVING CHANNEL.
        (f) ALL ON-SITE CHANNELS MUST BE VERIFIED TO BE ADEQUATE.
        (g) INCREASED VOLUMES OF SHEET FLOWS THAT MAY CAUSE EROSION OR SEDIMENTATION ON ADJACENT PROPERTY SHALL BE DIVERTED TO A STABLE OUTLET, ADEQUATE CHANNEL, PIPE OR PIPE SYSTEM, OR TO A DETENTION FACILITY.
        (h) IN APPLYING THESE STORMWATER MANAGEMENT CRITERIA, INDIVIDUAL LOTS OR PARCELS IN A RESIDENTIAL, COMMERCIAL OR INDUSTRIAL DEVELOPMENT SHALL NOT BE CONSIDERED TO BE SEPARATE DEVELOPMENT PROJECTS. INSTEAD, THE DEVELOPMENT, AS A WHOLE, SHALL BE CONSIDERED TO BE A SINGLE DEVELOPMENT PROJECT. HYDROLOGIC PARAMETERS THAT REFLECT THE ULTIMATE DEVELOPMENT CONDITION SHALL BE USED IN ALL ENGINEERING CALCULATIONS.
        (i) ALL MEASURES USED TO PROTECT PROPERTIES AND WATERWAYS SHALL BE EMPLOYED IN A MANNER WHICH MINIMIZES IMPACTS ON THE PHYSICAL, CHEMICAL, AND BIOLOGICAL INTEGRITY OF RIVERS, STREAMS AND OTHER WATERS OF THE STATE.

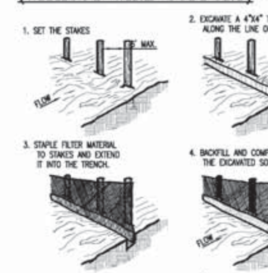
TREE PRESERVATION AND PROTECTION (TP)

— TP —



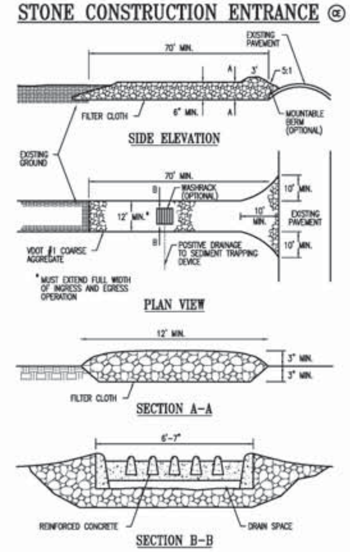
CONSTRUCTION OF A SILT FENCE (WITHOUT WIRE SUPPORT) (SF)

— x —



SHEET FLOW INSTALLATION (PERSPECTIVE VIEW)

STONE CONSTRUCTION ENTRANCE (CE)



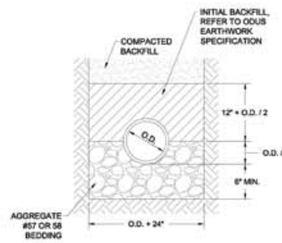
OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

WR&A
WHITMAN, REQUARDT & ASSOCIATES, LLP
11870 Merchants Walk, Suite 100, Newport News, VA 23606

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

OLD DOMINION UTILITY SERVICES 2023 HARRISON ROAD FORT EUSTIS, VIRGINIA, 23604 FEBRUARY 2013	SCALE NONE	OLD DOMINION UTILITY SERVICES ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION	EROSION AND SEDIMENT CONTROL NOTES AND DETAILS	DRAWING C5.01	SHEET 10

REV	DATE	DESCRIPTION



APPROVED BY: ODUS STANDARDS COMMITTEE

CHAIRPERSON DATE

Old Dominion Utility Services, Inc.

TITLE	PIPE BEDDING		
SCALE	DATE	REV	STD. DWG NO.
NONE	11/11	0	G1

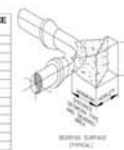
FITTING SIZE	22 1/2" BEND THRUST	22 1/2" BEND AREA	45° BEND THRUST	45° BEND AREA	90° BEND THRUST	90° BEND AREA	TEE OR DEAD END THRUST	TEE OR DEAD END AREA
4"	1,450	2	2,800	2	5,200	3	3,700	2
6"	2,900	2	5,800	3	10,700	6	7,600	4
8"	5,100	3	10,100	5	18,600	10	13,200	7
10"	8,300	5	16,500	8	30,400	16	21,500	12
12"	11,900	6	23,400	12	43,300	21	30,600	16
14"	16,100	8	31,800	16	58,700	30	41,500	21
16"	20,900	10	41,200	21	76,000	38	53,800	27

HORIZONTAL THRUST (LBS)

MINIMUM BEARING AREA (SF)

TYPICAL DIMENSIONS

BEARING AREA SQUARE FEET	HORIZONTAL FEET	VERTICAL FEET	MIN DISTANCE FEET
2	2	1	1
3	2	1.5	1
4	2	2	1
5	2.5	2	1
6	3	2	1.25
7	3.5	2	1.5
8	4	2	1.5
10	5	2	2
16	5.3	3	2.25
21	6.4	3.3	2.75
27	7.2	3.75	3
30	7.5	4	3.5
38	9	4.5	3.5



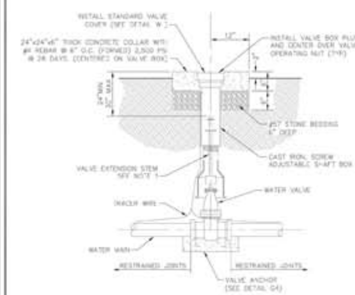
NOTES:
1. THRUST BLOCKS TO BE POURED AGAINST UNDISTURBED SOIL.
2. MINIMUM VOLUME OF THRUST BLOCK IS 3 CUBIC FEET.
3. THE ABOVE TABLES ARE BASED ON A SOIL HAVING A BEARING CAPACITY OF 2,000 PSF. TO DETERMINE THE REQUIRED BEARING AREA FOR OTHER SOILS, MULTIPLY THE BEARING AREA BY THE FOLLOWING FACTORS:
   - MUCK — 0 PSF - NOT ACCEPTABLE
   - SOFT CLAY — 1,000 PSF - MULTIPLY BEARING AREA BY 2.0
   - SAND — 2,000 PSF - NO ADJUSTMENT
   - SAND AND GRAVEL — 3,000 PSF - MULTIPLY BEARING AREA BY 0.66
   - CEMENTED SAND AND GRAVEL — 4,000 PSF - MULTIPLY BEARING AREA BY 0.5
4. THE ABOVE TABLES ARE BASED ON A TEST PRESSURE OF 200 PSI. FOR OTHER PRESSURES, ADJUST PROPORTIONATELY.
5. PORTLAND CEMENT CONCRETE SHALL PROVIDE F'c = 2,500 PSI @ 28 DAYS.
6. WRAP PIPE IN 6 MIL. POLYPROPYLENE PRIOR TO POURING CONCRETE.

APPROVED BY: ODUS STANDARDS COMMITTEE

CHAIRPERSON DATE

Old Dominion Utility Services, Inc.

TITLE	THRUST BLOCKING		
SCALE	DATE	REV	STD. DWG NO.
NONE	11/11	0	G2



VALVE BOX PROFILE

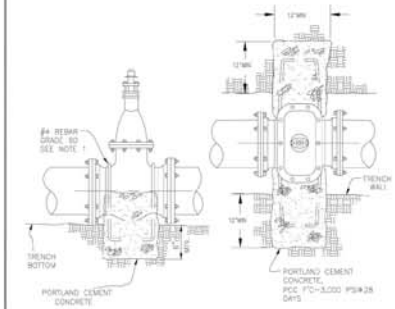
NOTES:
1. A VALVE EXTENSION STEM SHALL BE PROVIDED WHERE THE DEPTH TO THE OPERATING NUT EXCEEDS FOUR (4) FEET.
2. TRACER WIRE SHALL BE EXTENDED UP THE OUTSIDE OF THE VALVE BOX. A BRASS OR COPPER BOLT SHALL BE DRILLED THROUGH THE VALVE BOX AND TRACER WIRE SHALL BE CONNECTED TO EACH END OF THE BOLT, INSIDE AND OUTSIDE OF THE BOX.

APPROVED BY: ODUS STANDARDS COMMITTEE

CHAIRPERSON DATE

Old Dominion Utility Services, Inc.

TITLE	VALVE BOX		
SCALE	DATE	REV	STD. DWG NO.
NONE	11/11	0	G3



NOTES:
1. ALL ANCHOR RODS ARE TO BE COVERED WITH BITUMASTIC COMPOUND.
2. THE ANCHOR BLOCK SHALL BE KEYED NO LESS THAN 12 INCHES INTO UNDISTURBED SOIL OF THE TRENCH WALL AND NO LESS THAN 6 INCHES INTO THE TRENCH BOTTOM.
3. ANCHORS ARE TO BE INSTALLED ON ALL VALVES 8" AND LARGER, UNLESS OTHERWISE NOTED ON PLANS.
4. FOR GATE VALVES REQUIRING VALVE BOXES, SEE ODUS DETAIL G3.
5. POLYETHYLENE PLASTIC SHALL BE INSTALLED BETWEEN THE VALVE AND CONCRETE. POLY SHALL BE 6 MIL. THICK.

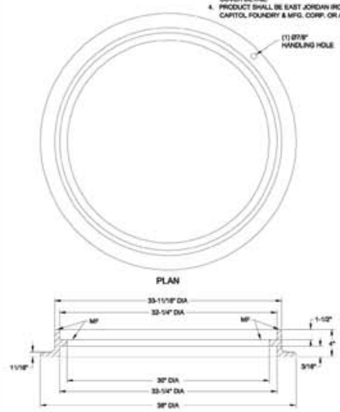
APPROVED BY: ODUS STANDARDS COMMITTEE

CHAIRPERSON DATE

Old Dominion Utility Services, Inc.

TITLE	VALVE ANCHOR		
SCALE	DATE	REV	STD. DWG NO.
NONE	11/11	0	G4

GENERAL NOTES:
1. MATCHING SURFACES MARKED "MF" TO BE FINISHED OF ANY IRREGULARITIES THAT WOULD PREVENT A SNUG FIT.
2. CASTING TO BE SMOOTH AND VOID OF AIR HOLES.
3. FOR MANHOLE COVER, SEE 32" SEWER MANHOLE COVER DETAIL.
4. PRODUCT SHALL BE EAST JORDAN IRON WORKS, CAPITOL FOUNDRY & MFG. CORP. OR APPROVED EQUAL.

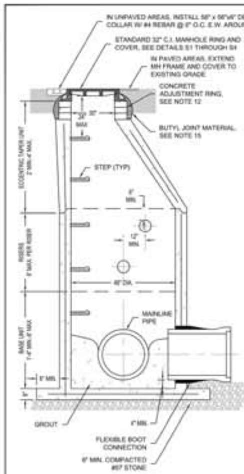


APPROVED BY: ODUS STANDARDS COMMITTEE

CHAIRPERSON DATE

Old Dominion Utility Services, Inc.

TITLE	32" MANHOLE RING		
SCALE	DATE	REV	STD. DWG NO.
NONE	05/10	0	S2



GENERAL NOTES:
1. PRECAST CONCRETE MANHOLE TO BE IN COMPLIANCE WITH ASTM C-478.
2. FLAT TOP MANHOLES ARE NOT PERMITTED UNLESS APPROVED IN WRITING BY ODUS.
3. THE PRE-CAST CONCRETE SHALL HAVE A MINIMUM ALLOWABLE COMPRESSIVE STRENGTH AT 28 DAYS OF 4000 P.S.I. FOR THE RISER SECTIONS AND FOR THE CONICAL SECTIONS.
4. THE RISER SECTIONS SHALL BE REINFORCED WITH STEEL WIRE MESH 6x6x10x10 AND THE CONICAL SECTION SHALL HAVE 4x4x10x10 STEEL WIRE MESH REINFORCEMENT AND 3/8 ROD AT TOP AND BOTTOM. (SEE ASTM STANDARDS PART 16-C-478)
5. THE BASE SHALL BE CLASS B CONCRETE PRECAST OR POURED ON UNDISTURBED OR SUB-BASE, COMPACTED TO 95% ASTM D1557.
6. WALL THICKNESS TO BE 5" MIN. FOR 48" INSIDE DIAMETER MANHOLES AND 6" MIN. FOR 60" INSIDE DIAMETER MANHOLES.
7. PROVIDE A MAX. 2 LIFT HOLES PER SECTION. PLUG LIFT HOLES WATERTIGHT WITH RUBBER PLUGS AND GROUT AFTER INSTALLATION.
8. MAXIMUM OF FOUR (4) LATERALS PER MANHOLE.
9. ALL JOINTS SHALL BE TONGUE AND GROOVE WITH PREFORMED FLEXIBLE BUTYL RUBBER MASTIC SEALANT. SEALANT SHALL CONFORM TO AASHTO M-198 AND FEDERAL SPECIFICATION SS-S-210A.
10. FOR PIPE CONNECTION, SEE EXISTING MANHOLE PENETRATION DETAIL.
11. THE INTERIOR OF THE MANHOLE SHALL BE LINED WITH A TWO-COMPONENT, 100% SOLIDS, MOISTURE-TOLERANT EPOXY RESIN. PRODUCT SHALL BE SIKAGARD 62 AS SUPPLIED BY SIKA CORPORATION OF LYNDHURST, NJ OR APPROVED EQUAL.
12. A MIN. OF ONE 3" ADJUSTING RING IS REQUIRED; HOWEVER, NO MORE THAN 8" OF ADJUSTING RINGS SHALL BE USED UNLESS APPROVED IN WRITING BY ODUS. PRECAST CONCRETE ADJUSTMENT RINGS TO BE COATED AND SEALED SMOOTH ON ALL INSIDE SURFACES, 3/8" THICK (MIN.) WITH HYDRAULIC CEMENT HIGH STRENGTH GROUT.
13. INSIDE DIAMETER OF MANHOLE MUST INCREASE TO 60" WHEN MANHOLE DEPTH IS GREATER THAN 12 FEET. 60" DIAMETER TO BE CONTINUOUS UP TO CONE SECTION.
14. MANHOLES WITH INTERIOR DROP CONNECTIONS SHALL BE 5' DIAMETER MIN. INSIDE.
15. MANHOLE CASTING AND ADJUSTMENT RINGS TO BE SET & EMBEDDED IN BUTYL JOINT MATERIAL AND CAPPED WITH HYDRAULIC CEMENT GROUT OVER FRAME FLANGE, ADJUSTMENT RINGS AND SECTION.
16. BASE SLAB SHALL BE REINFORCED WITH #4 REBAR @ 12" O.C. EACH WAY. ALL REBAR TO HAVE 1-1/2" MIN. COVER.

APPROVED BY: ODUS STANDARDS COMMITTEE

CHAIRPERSON DATE

Old Dominion Utility Services, Inc.

TITLE	48" SEWER MANHOLE		
SCALE	DATE	REV	STD. DWG NO.
NONE	08/11	0	S5

OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

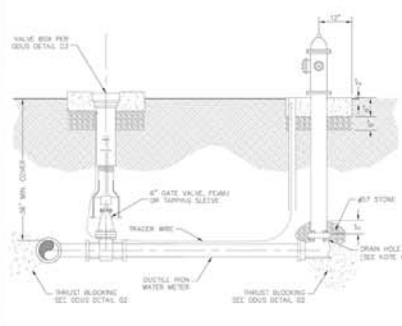
WR&A
WHITMAN, REQUARDT & ASSOCIATES, LLP
11870 Merchants Walk, Suite 100, Newport News, VA 23606

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

OLD DOMINION UTILITY SERVICES
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA, 23604
FEBRUARY 2013

SCALE	PROJECT	TITLE	DRAWING	SHEET
NONE	OLD DOMINION UTILITY SERVICES ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION	STANDARD DETAILS	C5.02	11

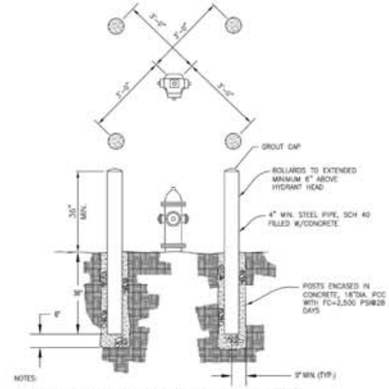
REV	DATE	DESCRIPTION



NOTES:

1. HYDRANTS SHALL BE MUELLER SUPER CENTURION 250, MODEL A-423.
2. ALONG ROADS, FIRE HYDRANTS SHALL BE LOCATED A MINIMUM OF 10 FEET FROM THE EDGE OF PAVEMENT OR EDGE OR CURB. FIRE HYDRANTS LOCATED CLOSER TO THE PAVEMENT SHALL REQUIRE WRITTEN APPROVAL BY ODUS.
3. HYDRANT IS TO BE PAINTED RED, CONTRACTOR TO SUPPLY PAINT AND PRIMER.
4. ADEQUATE CLEARANCE BETWEEN THRUST BLOCK AND DRAIN HOLE SHALL BE PROVIDED TO ASSURE PROPER DRAINAGE.
5. BOLLARDS SHALL BE REQUIRED FOR HYDRANTS LOCATED IN PAVED AREAS, WITHIN 3' OF PAVED AREAS, OR ALONG ROADWAYS.

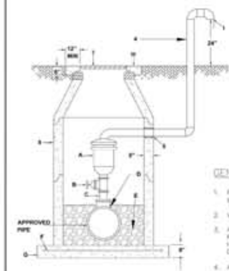
APPROVED BY: ODUS STANDARDS COMMITTEE — CHAIRPERSON — DATE
Old Dominion Utility Services, Inc.
TITLE: 6" STANDARD DRY BARREL FIRE HYDRANT | SCALE: NONE | DATE: 11/11 | REV: 0 | STD. DWG NO: W5



NOTES:

1. ORIENTATION OF BARRICADE MAY BE CHANGED ACCORDING TO FIELD CONDITIONS.
2. BOLLARD COATING COLOR TO BE SAFETY YELLOW.
3. COATING MATERIAL SHALL BE PER COMPANY PAINTING SPECIFICATIONS FOR ABOVE GRADE STEEL PIPING.

APPROVED BY: ODUS STANDARDS COMMITTEE — CHAIRPERSON — DATE
Old Dominion Utility Services, Inc.
TITLE: FIRE HYDRANT BOLLARDS | SCALE: NONE | DATE: 11/11 | REV: 0 | STD. DWG NO: W6



CONSTRUCTION KEY NOTES:

A. FLANGED COMBINATION AIR AND VACUUM VALVE
B. FLANGED OR THREADED GATE VALVE
C. BLIND FLANGE AND WELDED, THREADED NIPPLE SAME SIZE AS AIR VALVE
D. FLANGED OUTLET SAME SIZE AS AIR VALVE
E. GRAVEL BEDDING 12" DEEP
F. NO. 5 AT 12" EACH WAY
G. CONCRETE FOOTING CLASS "A" CONCRETE MINIMUM 4,000 PSI
H. CLASS "A" CONCRETE COLLAR MINIMUM 4,000 PSI
I. INSECT SCREEN

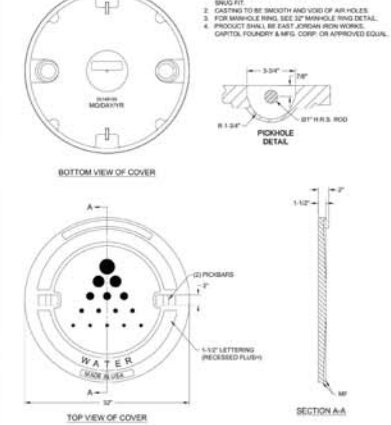
GENERAL NOTES:

1. INSTALLATION SHALL GENERALLY BE USED FOR WATER MAINS 16" AND SMALLER.
2. VALVE AND PIPE SIZES SHALL BE AS SPECIFIED.
3. AIR VENTS SHALL BE LOCATED CLEAR OF PAVED ROADWAY. DIMENSIONS TO BE DETERMINED IN THE FIELD. AIR VENT PIPING AND SLEEVE SIZE SHALL EQUAL AIR VALVE SIZE.
4. AIR VENT PIPING TO BE 4" DIA. SCHEDULE 40 WELDED STEEL WITH FORGE STEEL WELD FITTINGS. BURIED VENT PIPING SHALL HAVE TWO COATS OF EPOXY POLYAMIDE COATING AND ABOVE GROUND PIPING SHALL BE PRIMED AND PAINTED WITH SEMI-GLOSS ENAMEL, WHITE LETTERS ON BLUE PIPE.
5. PIPE WALL SLEEVE SHALL HAVE LINK SEAL OR EQUAL.
6. WHERE TOP OUTLET FITTINGS ARE NOT PROVIDED BY MANUFACTURER, PROVIDE TAPPING SLEEVE WITH VERTICAL FLANGE TO SIZE OF AIR VALVE. CONTRACTOR TO DRY TAP MAIN LINE.
7. STANDARD MANHOLE RING AND COVER PER ODUS DETAIL W9.
8. STANDARD 48" MANHOLE PER ODUS DETAIL S5.
9. PRECAST CONCRETE MANHOLE SHALL NOT BEAR ON PIPE.
10. PIPE OPENINGS IN MANHOLE RISERS SHALL HAVE COMPRESSION TYPE FLEXIBLE TYPE MANHOLE CONNECTORS.

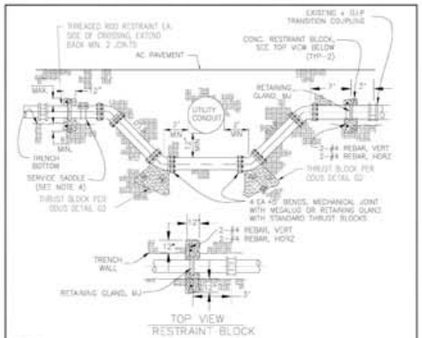
APPROVED BY: ODUS STANDARDS COMMITTEE — CHAIRPERSON — DATE
Old Dominion Utility Services, Inc.
TITLE: AIR/VACUUM RELEASE VALVE IN MANHOLE | SCALE: NONE | DATE: 11/11 | REV: 0 | STD. DWG NO: W8

GENERAL NOTES:

1. MATCHING SURFACES MARKED "MF" TO BE FINISHED OF ANY IRREGULARITIES THAT WOULD PREVENT A SNUG FIT.
2. CASTING TO BE SMOOTH AND VOID OF AIR HOLES.
3. FOR MANHOLE RING, SEE 32" MANHOLE RING DETAIL.
4. PRODUCT SHALL BE EAST JORDAN IRON WORKS, CAPITOL FOUNDRY & MFG. CORP. OR APPROVED EQUAL.



APPROVED BY: ODUS STANDARDS COMMITTEE — CHAIRPERSON — DATE
Old Dominion Utility Services, Inc.
TITLE: 32" WATER MANHOLE COVER | SCALE: NONE | DATE: 11/11 | REV: 0 | STD. DWG NO: W9



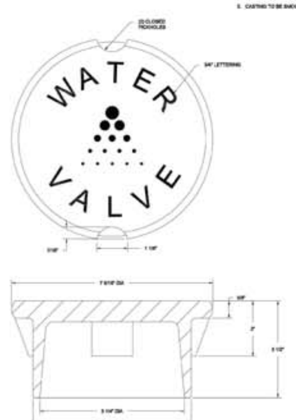
NOTES:

1. THE RESTRAINT BLOCKS SHALL BE A MINIMUM OF 24" IN HEIGHT AND 12" THICK. THE TOP OF THE BLOCK SHALL BE NO MORE THAN 6" ABOVE TOP OF PIPE.
2. ALL PIPE JOINTS AT 45° BENDS SHALL BE MECHANICAL JOINT WITH MEGALUG OR RETAINING GLAND. FLANGED JOINTS MAY BE USED WHERE CONDITIONS WARRANT.
3. INSTALLATION SHALL BE ENCASED IN A POLYETHYLENE WRAPPER PER AWWA STANDARD C105.
4. SERVICE SADDLE SHALL BE INSTALLED ON THE HIGH POINTS OF THE OFFSET FOR THE INSTALLATION OF AIR/VAC RELEASE VALVE, AS SPECIFIED ON THE PLAN OR BY THE INSPECTOR. SERVICE SADDLE SHALL BE 1" ON 8" AND SMALLER EXISTING MAINS AND 2" ON LARGER EXISTING MAINS. SERVICE SADDLES SHALL BE INSTALLED WITH A CORPORATION STOP.
5. IF BOTTOM CHORD EXCEEDS 18', CONNECT PIPE SECTIONS WITH ODUS APPROVED RESTRAINT JOINT.

APPROVED BY: ODUS STANDARDS COMMITTEE — CHAIRPERSON — DATE
Old Dominion Utility Services, Inc.
TITLE: 45° MECHANICAL JOINT UTILITY INVERT | SCALE: NONE | DATE: 11/11 | REV: 0 | STD. DWG NO: W10

GENERAL NOTES:

1. MATCHING SURFACES MARKED "MF" TO BE FINISHED OF ANY IRREGULARITIES THAT WOULD PREVENT A SNUG FIT.
2. CASTING TO BE SMOOTH AND VOID OF AIR HOLES.



APPROVED BY: ODUS STANDARDS COMMITTEE — CHAIRPERSON — DATE
Old Dominion Utility Services, Inc.
TITLE: VALVE BOX COVER | SCALE: NONE | DATE: 11/11 | REV: 0 | STD. DWG NO: W12

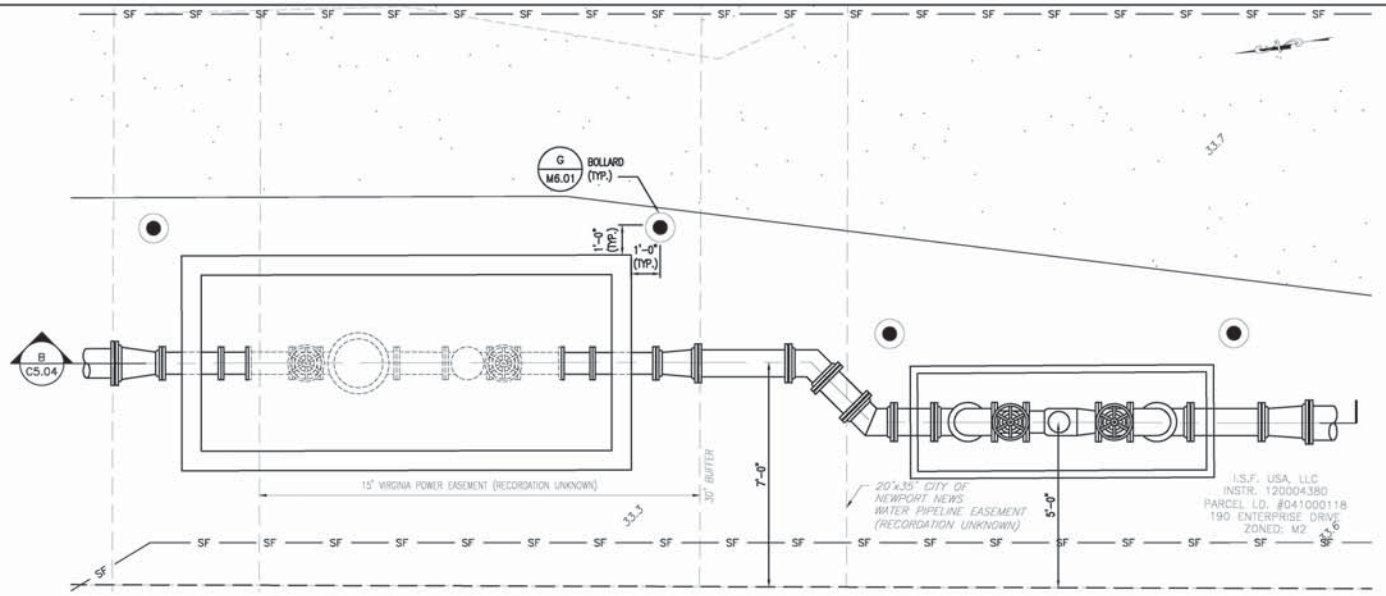
OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

WR&A
WHITMAN, REQUARDT & ASSOCIATES, LLP
11870 Merchants Walk, Suite 100, Newport News, VA 23606

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

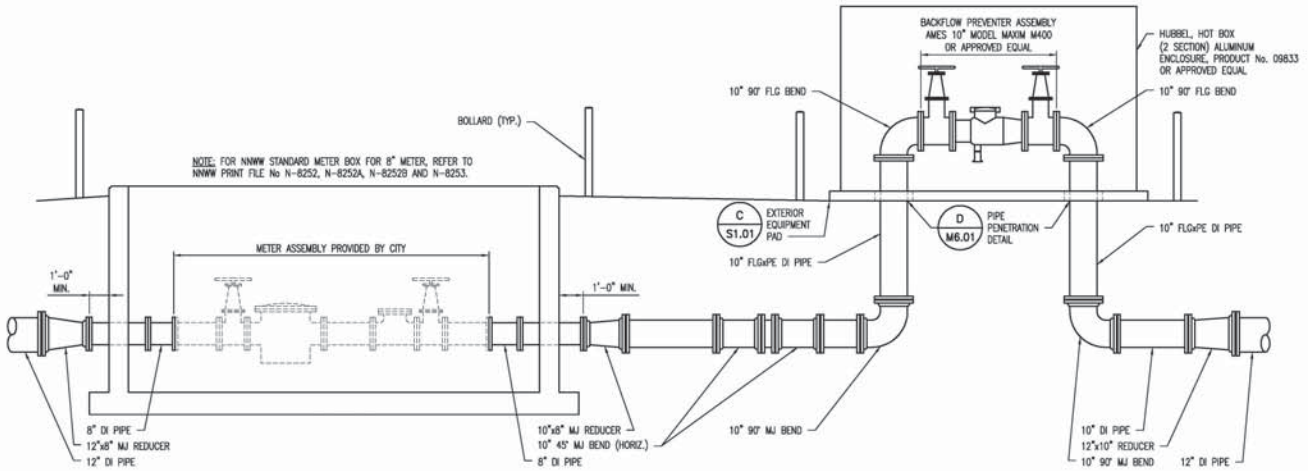
OLD DOMINION UTILITY SERVICES 2023 HARRISON ROAD FORT EUSTIS, VIRGINIA, 23604 FEBRUARY 2013	SCALE: NONE	OLD DOMINION UTILITY SERVICES ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION	STANDARD DETAILS	DRAWING: C5.03	SHEET: 12

REV	DATE	DESCRIPTION



METER VAULT AND BACKFLOW PREVENTER PLAN

A C5.04 SCALE: 1/2" = 1'-0"
REF.: C1.01



METER VAULT AND BACKFLOW PREVENTER DETAIL

B C5.04 SCALE: 1/2" = 1'-0"
REF.: C1.01

OLD DOMINION UTILITY SERVICES
INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

WHITMAN, REQUARDT & ASSOCIATES, LLP
11870 Merchants Walk, Suite 100, Newport News, VA 23606

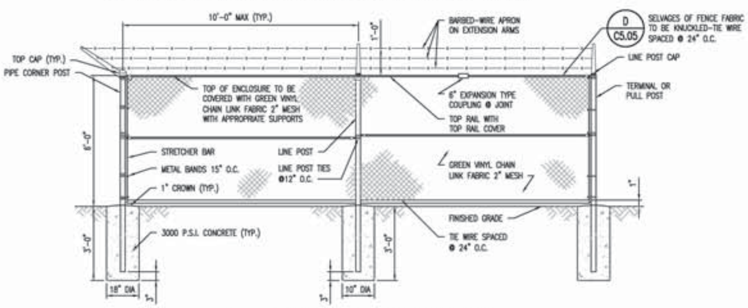
90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

SCALE: 1/2" = 1'-0"

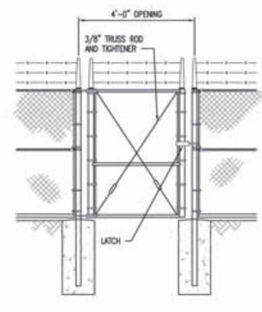
REV	DATE	DESCRIPTION

OLD DOMINION UTILITY SERVICES 2023 HARRISON ROAD FORT EUSTIS, VIRGINIA, 23604 FEBRUARY 2013	SCALE 1/2" = 1'-0"	OLD DOMINION UTILITY SERVICES ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION	METER VAULT AND BACKFLOW PREVENTER	DRAWING C5.04	SHEET 13

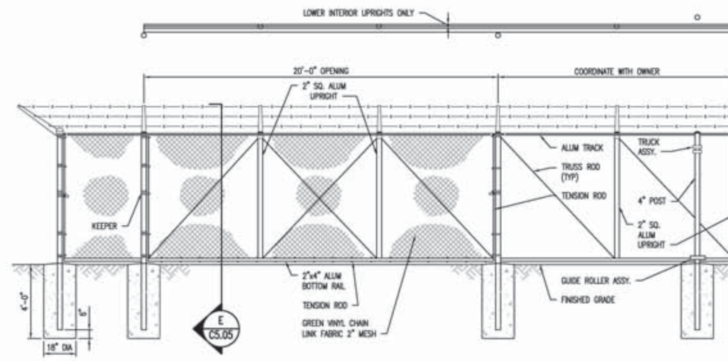
NOTES:
1. DIAMETER OF CONCRETE ENCASEMENT SHALL BE 10" AT EACH LINE POST AND 18" AT EACH CORNER / TERMINAL AND GATE POST.
2. WIRE TIES, RAILS, POSTS, AND BRACES SHALL BE CONSTRUCTED ON THE PUMP STATION SIDE OF THE FENCE ALIGNMENT. CHAIN-LINK FABRIC SHALL BE PLACED ON THE OPPOSITE SIDE OF THE PUMP STATION SITE.
3. INSTALL FENCE GROUNDING IN ACCORDANCE WITH SECTION 02821. REFER TO SHEET E4-01 FOR GROUNDING DETAILS.



A C5.05 **CHAIN LINK FENCE DETAIL**
SCALE: NONE

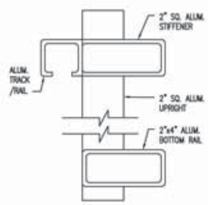


B C5.05 **PERSONNEL GATE DETAIL**
SCALE: NONE

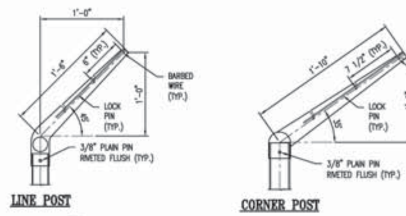


C C5.05 **CANTILEVERED SLIDING GATE DETAIL**
SCALE: NONE

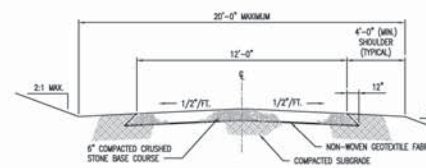
D C5.05 **FABRIC SELVAGE**
SCALE: NONE



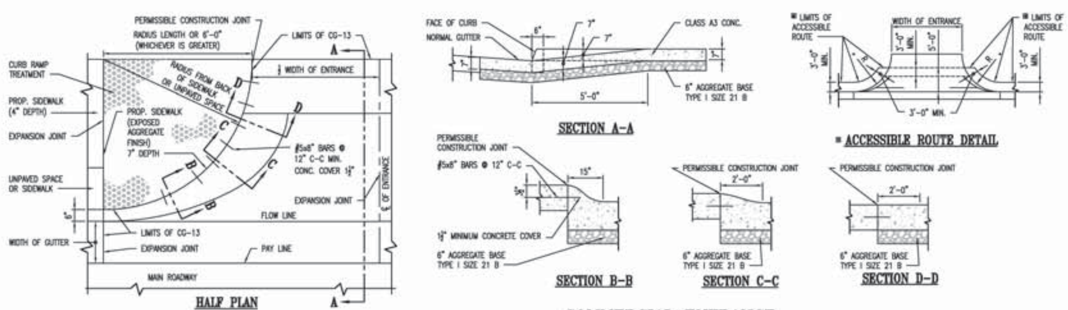
E C5.05 **SECTION**
SCALE: NONE



F C5.04 **EXTENSION ARM DETAILS**
SCALE: NONE



G C5.05 **GRAVEL DRIVEWAY SECTION**
SCALE: NONE



ADDITIONAL RIGHT-OF-WAY IS REQUIRED IF THE LIMITS OF ACCESSIBLE ROUTE ■ EXTEND BEYOND EXISTING OR PROPOSED VDOT RIGHT-OF-WAY.

DETAIL TO BE USED WHEN THE COMBINED WIDTH OF UNPAVED SPACE AND SIDEWALK SPACE IS LESS THAN 7'.

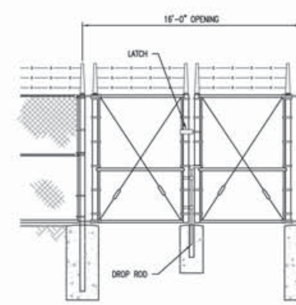
■ ACCESSIBLE ROUTE IS DEFINED AS A CONTINUOUS UNOBSTRUCTED, STABLE, FIRM AND SLIP RESISTANT PATH CONNECTING ALL ACCESSIBLE ELEMENTS OF A FACILITY THAT CAN BE APPROACHED, ENTERED AND USED BY PERSONS WITH MOBILITY IMPAIRMENTS.

– IF ACCESSIBLE ROUTES ARE BEING PROVIDED, A MINIMUM OF 3' TRAVERSABLE WIDTH IS REQUIRED.

LIMITS OF EXPOSED AGGREGATE SIDEWALK FOR CURB RAMP TREATMENT.

NOTES:
1. PROP. 7" SIDEWALK IS TO BE POURED MONOLITHICALLY WITH ENTRANCE OR BY USING PERMISSIBLE CONSTRUCTION JOINT WITH REQUIRED BARS.
2. PROPOSED 7" SIDEWALK TO BE CLASS A-3 CONCRETE WITH EXPOSED AGGREGATE FINISH.
3. REQUIRED BARS ARE TO BE NO. 5x8" PLACED 1' CENTER TO CENTER ALONG BACK OF CURB, MID-DEPTH OF SIDEWALK. MINIMUM CONCRETE COVER 1½".
4. ALL DETAILS AND DIMENSIONS NOT SHOWN ARE THE SAME AS STANDARD CG-9D.
5. THIS DESIGN MAY ALSO BE APPLIED TO OTHER ENTRANCE STANDARDS AS THE NEED ARISES.
6. WHEN USED IN CONJUNCTION WITH STANDARD CG-3 OR CG-7, THE CURB FACE ON. THIS STANDARD IS TO BE ADJUSTED TO MATCH THE MOUNTABLE CURB CONFIGURATION.

H C5.05 **COMMERCIAL ENTRANCE (HEAVY TRUCK TRAFFIC ANTICIPATED)**
SCALE: NONE



I C5.05 **GATE DETAIL**
SCALE: NONE

OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

WR&A
WHITMAN, REQUARDT & ASSOCIATES, LLP
11870 Merchants Walk, Suite 100, Newport News, VA 23606

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

OLD DOMINION UTILITY SERVICES 2023 HARRISON ROAD FORT EUSTIS, VIRGINIA, 23604 FEBRUARY 2013	SCALE NONE	OLD DOMINION UTILITY SERVICES ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION	FENCE DETAILS	REV	DATE	DESCRIPTION
				DRAWING C5.05		SHEET 14

ARCHITECTURAL ABBREVIATIONS

ABV	ABOVE
AC	AIR CONDITIONING (CONDITIONER)
AD	ACCESS DOOR (OR PANEL)
ADA	AMERICAN WITH DISABILITIES ACT
ADD	ADDENDUM
ADJ	ADJACENT
AES	ABOVE EXISTING SLAB
AF	ACCESS FLOOR
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
ALT	ALTERNATE
ALUM	ALUMINUM
APC	ACOUSTICAL PANEL CEILING (LAY-IN)
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ASB	ASBESTOS
ASP	ASPHALT
ATC	ACOUSTICAL TILE CEILING (CONCEALED SUSPENSION)
AWP	ACOUSTICAL WALL PANEL
BB	BULLETIN BOARD (GLASS COVERD)
BC	BOTTOM OF CURB
BD	BOARD
BEN	BENCH
BETW	BETWEEN
BLDG	BUILDING
BLKG	BLOCKING
BM	BEAM
BOT	BOTTOM
BR	BRICK
BR/S	BACKER ROD AND SEALANT
C	CONDUIT
C/C	CENTER TO CENTER
CB	CHALK BOARD
CAB	CABINET
CARP	CARPET
CARPT	CARPET TILE
CEM	CEMENT
CER	CERAMIC
CI	CAST IRON
CG	CORNER GUARD
CH	CEILING HEIGHT
CJ	CONTROL JOINT
CL	CENTERLINE
CLOS	CLOSET
CLG	CEILING
CLR	CLEAR
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CO	CLEAR OPENING
COL	COLUMN
COMP	COMPACTED
CONC	CONCRETE
CONSTR	CONSTRUCTION
CONT	CONTINUOUS
CONV	CONVECTOR
CRS	COURSES
CR	COLD ROLLED
CSK	COUNTERSUNK
CSPE	CHLOROSULFONATED POLYETHYLENE ELASTOMER
CT	CERAMIC TILE
CTR	COUNTER
CW	COLD WATER
CX	CONNECT TO EXISTING
D	DOUBLE
DEG	DEGREE
DEMO	DEMOLITION
DET	DETAIL
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DN	DOWN
DIR	DIRECTORY
DO	DOOR OPENING
DR	DOOR
DS	DOWNSPOUT
DWG	DRAWING
E	EAST
EA	EACH
EF	EACH FACE
EFS	EXTERIOR FINISH SYSTEM
EIFS	EXTERIOR INSULATION AND FINISH SYSTEM
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRIC OR ELECTRICAL
ELEV	ELEVATOR
EM	ENTRY MAT
EP	ETHYLENE PROPYLENE-BASED (SINGLE PLY ROOFING)
EPB	ELECTRIC PANEL BOX
EPDM	ETHYLENE-PROPYLENE-DIENE MEMBRANE
EPS	EXPANDED POLYSTYRENE
EPX	EPOXY
EQ	EQUAL
EQUIP	EQUIPMENT
EST	ESTIMATE
EW	EACH WAY
EUH	ELECTRIC UNIT HEATER
EWC	ELECTRIC WATER COOLER
EWCA	ELECTRIC WATER COOLER - ACCESSIBLE
EXIST	EXISTING
EXP	EXPANSION OR EXPOSED
EXT	EXTERIOR
F	FILLER
FC	FAN COIL UNIT
FD	FLOOR DRAIN OR FIRE DAMPER
FDR	FOLDING DOOR (WOOD OR FABRIC)
FE	FIRE EXTINGUISHER ON BRACKET
FEC	FIRE EXTINGUISHER CABINET
FH	FLAT HEAD
FIRE T	FIRE TREATED
FIN	FINISH OR FINISHED
FIX	FIXTURE
FL	FLASHING
FLM	FULL LENGTH MIRROR
FLR	FLOOR
FR	FIRE RATED
FRC	FIBER-REINFORCED COATING
FS	FOLDING SHELF
FSS	FOLDING SHOWER SEAT
FT	FOOT OR FEET
FTG	FOOTING
FWP	FABRIC-WRAPPED PANEL (FABRICATED; TACKABLE; ACOUSTICAL PANEL)
GA	GAUGE
GALV	GALVANIZED
GB	GRAB BAR
GEN	GENERAL
GL	GLASS
GLM	GLASS UNIT MASONRY (GLASS BLOCK)
GMU	GLAZED MASONRY UNIT
GRD	GROUND
GP	GYPSUM PLASTER
GRT	GROUT
GVP	GYPSUM VENEER PLASTER
GYPB	GYPSUM BOARD (WALL OR CEILING)
GYPBS	GYPSUM BOARD SHAFT-WALL ASSEMBLY
H	HEAD
HB	HORIZONTAL BLIND
HDW	HARDWARE
HM	HOLLOW METAL
HOR	HORIZONTAL
HP	HIGH POINT
HR	HOUR
HT	HEIGHT
HTR	HEATER
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
HW	HOT WATER
ID	INSIDE DIAMETER
IN	INCH
INSUL	INSULATION
INT	INTERIOR
INV	INVERT
J	JAMB
JC	JANITOR'S CLOSET
JS	JOINT SEALANT
JT	JOINT
KIT	KITCHEN
L	LINTEL
LAB	LABORATORY
LAV	LAVATORY
LG	LONG
LIN	LINOLEUM FLOOR COVERING
LLV	LONG LEG VERTICAL
LOC	LOCATION
LOCK	LOCKER
LP	LOW POINT
LT	LIGHT
LTG	LIGHTING
LV	LOUVER
M	MIRROR OR MEN
MACH	MACHINE
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MC	MEDICINE CABINET
MET	METAL
MDF	MEDIUM DENSITY FIBERBOARD
MFB	MINERAL FIBER BLANKET
MECH	MECHANICAL
MET	METAL
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MK	MARK
MO	MASONRY OPENING
MP	METAL PANEL
MR	MOP RACK
MTD	MOUNTED
MTL	METAL
N	NORTH
NA	NOT APPLICABLE
NO.	SANITARY NAPKIN DISPENSER
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
OA	OVERALL
OC	ON CENTER
OD	OUTSIDE DIAMETER
OFT	OFFICE
OHD	OVERHEAD COILING DOOR
OHG	OVERHEAD COILING GRILLE
OP	OPERABLE PANEL PARTITION (HUNG FROM OVERHEAD TRACK)
PAV	PAVER TILE
PC	PIECE
PF	PLASTIC FABRICATION
PL	PLATE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER
PREFAB	PREFABRICATED
PRES T	PRESSURE TREATED
PT	PAINT
PTD	PAPER TOWEL DISPENSER
PTN	PARTITION
PVC	POLYVINYL CHLORIDE
QT	QUARRY TILE
QTY	QUANTITY
R	RISER OR RADIUS
RB	RESILIENT WALL BASE AND ACCESSORIES (VINYL BASE; RUBBER BASE; TREADS; NOSINGS; EDGINGS)
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN OR ROUND
REQ'D	REQUIRED
RF	RESILIENT FLOORING (VINYL; RUBBER; VINYL COMPOSITION; SHEET FLOORING)
REBAR	REINFORCING BAR
REINF	REINFORCED OR REINFORCING
RESF	RESINOUS FLOORING
REQ	REQUIRED
RET	RETURN
REV	REVISION
RH	ROBE HOOK
RM	ROOM
RO	ROUGH OPENING
RWR	RECESSED WASTE RECEPTACLE
RV	ROOF VENT
RX	REMOVE EXISTING
S	SILL, SOUTH OR SINGLE
SC	SPECIAL COATING (OTHER THAN PAINT SYSTEMS)
SCH	SCHEDULE OR SCHEDULED
SCR	SHOWER CURTAIN ROD
SD	SOAP DISPENSER OR STORM DRAIN
SECT	SECTION
SF	SQUARE FOOT
SFT	STRUCTURAL FACING TILE
SH	SHOWER
SHT	SHEET
SIM	SIMILAR
SJ	STEEL JOIST
SND	SANITARY NAPKIN DISPOSAL
SOD	SECTIONAL OVERHEAD DOOR (STEEL; ALUMINUM: PLASTIC PANEL)
SPEC	SPECIFICATION
SP	STAND PIPE
SQ	SQUARE
SS	STAINLESS STEEL OR SERVICE SINK
SSM	SOLID SURFACING MATERIAL
STAT	STATIONARY
STL	STEEL
STRUCT	STRUCTURAL OR STRUCTURE
SUSP	SUSPENDED
SWR	SURFACE-MOUNTED WASTE RECEPTACLE
SYS	SYSTEM
T	TILE
TOB	TOWEL BAR
T&B	TOP & BOTTOM
T&G	TONGUE & GROOVE
TC	TOP OF CURB
TCD	TOILET SEAT COVER DISPENSER
TEL	TELEPHONE
TER	TERRAZZO
TH	THICK
TO	TOP OF
TOC	TOP OF CURB
TOS	TOP OF STEEL
TOW	TOP OF WALL
TP	TOILET PARTITION (WATER CLOSET; URINAL; SHOWER; SCREEN)
TPD	TOILET PAPER DISPENSER
TR	TREAD
TS	TRANSITION STRIP
TYP	TYPICAL
U	UNIT
UNO	UNLESS NOTED OTHERWISE
UR	URINAL
V	VENT
VB	VERTICAL BLIND
VDB	VISUAL DISPLAY BOARD (HINGED CONFERENCE UNIT)
VERT	VERTICAL
VEST	VESTIBULE
VIF	VERIFY IN FIELD
VP	VAPOR BARRIER
VS	VERTICAL STANDPIPE
W	WOMEN, WIDTH, WEST OR WOVEN
W/	WITH
WC	WATER CLOSET OR WALL COVERING (VINYL OR TEXTILE WALL COVERING; WALL PAPER)
WD	WOOD
WH	WEEP HOLE
WHT	WHITE
WO	WINDOW OPENING
WP	WATERPROOF OR WORKING POINT
WR	WATER RESISTANT OR WASTE RECEPTACLE
WT	WEIGHT
WWF	WOVEN WIRE FABRIC
YD	YARD
YR	YEAR

LEGEND

- CONCRETE MASONRY UNITS
- GYPSUM BOARD PARTITIONS
- BATT INSULATION
- CONCRETE
- METAL PATTERN
- DOOR NUMBER SYMBOL
- LOUVER NUMBER SYMBOL
- WINDOW NUMBER SYMBOL / CONSTRUCTION NOTE SYMBOL
- PARTITION TYPES
- NUMBER-DRAWING NOTE / DEMOLITION SYMBOL
- REVISION
- NORTH ARROW (CONSTRUCTION NORTH)
- NUMBER INDICATES SECTION LETTER INDICATES PLAN DETAIL; SHEET NUMBER — DETAIL SYMBOL
- NUMBER INDICATES SECTION LETTER INDICATES ELEVATION; SHEET NUMBER — SECTION/ELEVATION INDICATOR
- ELEVATION LEVEL INDICATOR
- JS-# — JOINT SEALANT- SEE JOINT SEALANT SCHEDULE IN SPECIFICATIONS

OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

WR&A
WHITMAN, REQUARDT & ASSOCIATES, LLP
1870 Merchants Walk, Suite 100, Newport News, VA 23606

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

OLD DOMINION UTILITY SERVICES
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA, 23604
FEBRUARY 2013

SCALE: NONE

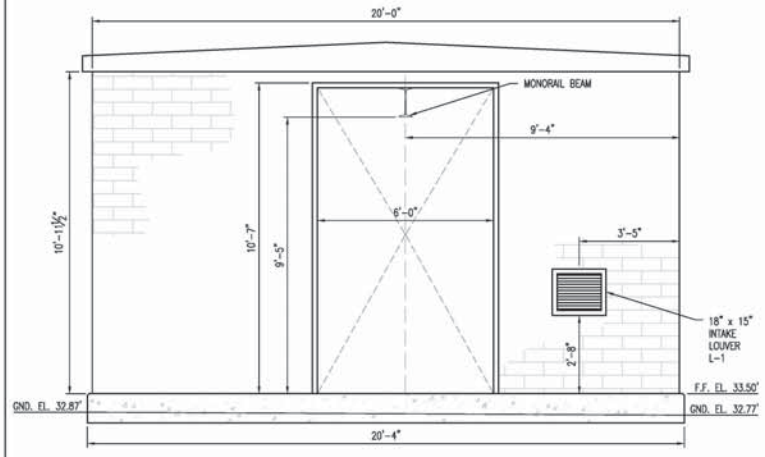
OLD DOMINION UTILITY SERVICES
ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION

ARCHITECTUAL LEGEND AND ABBREVIATIONS

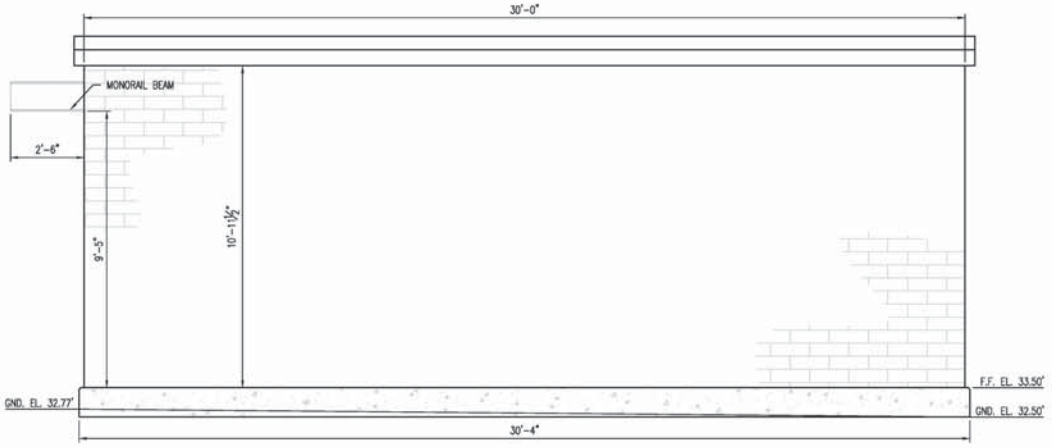
DRAWING: A0.01

SHEET: 15

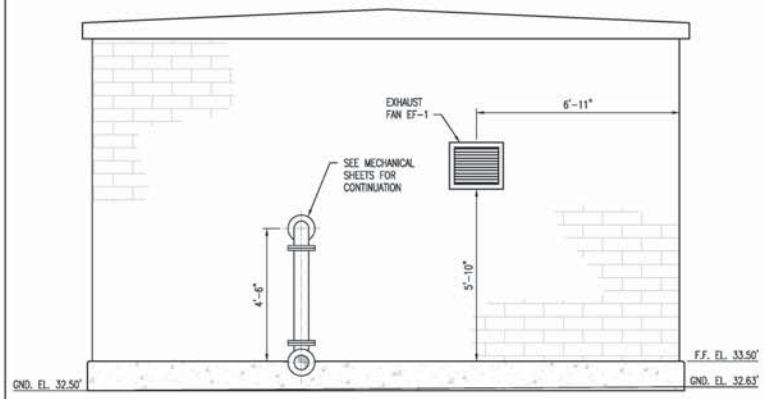
REV	DATE	DESCRIPTION



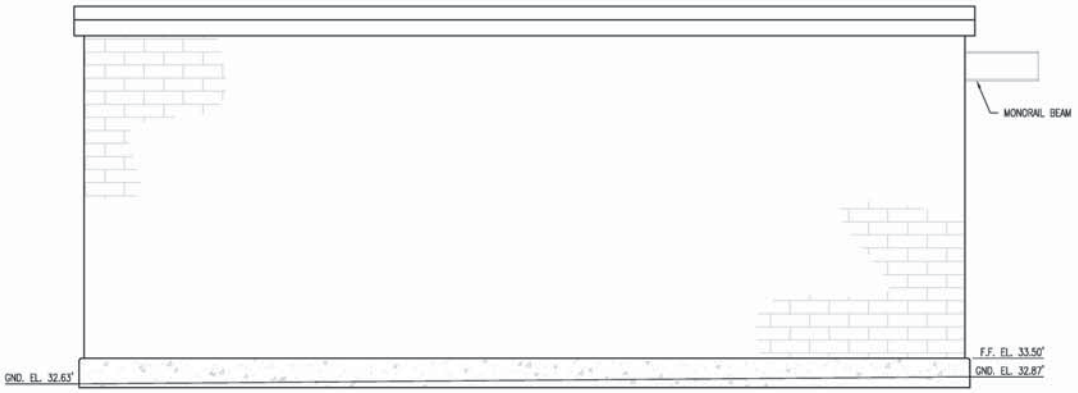
A A3.01 **ELEVATION FACING WEST**
SCALE: 1/2" = 1'-0"



B A3.01 **ELEVATION FACING SOUTH**
SCALE: 1/2" = 1'-0"



C A3.01 **ELEVATION FACING EAST**
SCALE: 1/2" = 1'-0"



D A3.01 **ELEVATION FACING NORTH**
SCALE: 1/2" = 1'-0"

OLD DOMINION UTILITY SERVICES
INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

WHITMAN, REQUARDT & ASSOCIATES, LLP
1870 Merchants Walk, Suite 100, Newport News, VA 23606

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

0 1' 2' 4'
SCALE: 1/2" = 1'-0"

REV	DATE	DESCRIPTION

OLD DOMINION UTILITY SERVICES
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA, 23604
FEBRUARY 2013

SCALE
1/2" = 1'-0"

OLD DOMINION UTILITY SERVICES
ALTERNATE WATER SUPPLY LINE
AND BOOSTER STATION

BUILDING ELEVATIONS

DRAWING
A3.01

SHEET
16

STRUCTURAL NOTES

GENERAL NOTES:

1. THE SIZES AND LOCATIONS OF EQUIPMENT PADS AND PEDESTALS, AS WELL AS EQUIPMENT-RELATED FLOOR AND WALL OPENINGS, ARE DEPENDENT ON THE ACTUAL EQUIPMENT FURNISHED. VERIFY AND COORDINATE ALL SUCH ITEMS. DIMENSIONS INDICATED ON THESE DRAWINGS SHALL NOT BE ALTERED WITHOUT APPROVAL OF THE ENGINEER. STRUCTURAL DRAWINGS MAY NOT SHOW ALL EQUIPMENT PADS AND OTHER EQUIPMENT SUPPORTS REQUIRED. REFER TO CIVIL, ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS.
2. LOCATIONS OF BORINGS ARE SHOWN ON CIVIL DRAWINGS. BORING LOGS ARE INCLUDED IN SPECIFICATIONS.
3. COORDINATE ALL ACTIVITIES, INCLUDING THOSE OF SUBCONTRACTORS.

FOUNDATION NOTES:

1. DESIGN BEARING PRESSURE SHALL BE 3000 PSF.
2. KEEP ALL EXCAVATIONS DRY. STANDING WATER WILL NOT BE ALLOWED IN EXCAVATIONS. PLACE A LAYER OF 10 MIL VAPOR BARRIER AND A 6" LAYER OF CRUSHED STONE UNDER ALL SLABS ON GRADE. ALL EXCAVATIONS SHALL BE INSPECTED AND APPROVED BY THE ENGINEER BEFORE PLACING ANY CONCRETE OR CRUSHED STONE.
3. FOR MECHANICAL AND ELECTRICAL WORK TO BE INCORPORATED IN FOUNDATION WORK, SEE MECHANICAL AND ELECTRICAL DRAWINGS.
4. FILL ALL EXCESS EXCAVATION BELOW THE ELEVATION OF THE CONCRETE AS SPECIFIED.

CONCRETE NOTES:

1. PROVIDE CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 4500 PSI AT 28 DAYS.
2. DETAIL AND CONSTRUCT REINFORCED CONCRETE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE ACI 301, "SPECIFICATION FOR STRUCTURAL CONCRETE".
3. DETAIL REINFORCING STEEL IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE SP-66, "ACI DETAILING MANUAL", WHICH INCLUDES ACI 315, "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT".
4. PROVIDE REINFORCEMENT CONFORMING TO ASTM A 615, GRADE 60, DEFORMED BARS.
5. PROVIDE WELDED WIRE FABRIC CONFORMING TO ASTM A 185.
6. UNLESS NOTED OTHERWISE ON THE DRAWINGS, THE CONCRETE COVER FOR REINFORCEMENT SHALL BE AS FOLLOWS:
   - A. BOTTOM BARS IN FOOTINGS AND IN SLABS ON EARTH OR GRAVEL: 3".
   - B. SLABS EXPOSED TO GROUND, WEATHER, PROCESS LIQUID OR VAPORS AFTER REMOVAL OF FORMS: 2".
   - C. STRUCTURAL SLABS NOT EXPOSED TO GROUND, WEATHER, PROCESS LIQUID, VAPORS OR TRUCK TRAFFIC: 1".
7. SUBMIT REINFORCING STEEL DETAILS (SHOP DRAWINGS) AND RECEIVE APPROVAL BEFORE PROCEEDING WITH FABRICATION.
8. CHAMFER ALL EXPOSED CONCRETE EDGES 3/4" UNLESS OTHERWISE NOTED.
9. DETAIL ALL SPLICES FOR REINFORCING BARS NOT DIMENSIONED ON THE DRAWINGS AS TABULATED ON THIS DRAWING.
10. POUR CONCRETE SLABS AND WALLS BETWEEN INDICATED JOINTS, ALLOWING A MINIMUM ELAPSED PERIOD OF 3 DAYS BETWEEN ADJACENT POURS.
11. PROVIDE JOINTS AS DETAILED ON THE DRAWINGS. NO ADDITIONAL JOINTS SHALL BE USED, NOR ANY OMITTED, EXCEPT BY WRITTEN AUTHORIZATION FROM THE ENGINEER. APPROVED ADDITIONAL JOINTS SHALL NOT RESULT IN ADDITIONAL EXPENSE TO THE OWNER.
13. WHERE A SLAB IS SLOPED (TOP AND/OR BOTTOM), PROVIDE SLOPED REINFORCING PARALLEL TO THE CONCRETE SURFACE.
14. SIZE AND LOCATE ANCHOR BOLTS AND EQUIPMENT PADS OR PEDESTALS TO SUIT EQUIPMENT FURNISHED.
16. REVIEW ALL DRAWINGS FROM OTHER DISCIPLINES AND COORDINATE ALL OPENINGS AND EMBEDDED ITEMS SUCH AS SLEEVES, ANCHORS, CONDUIT, ETC. THAT WILL BE INCORPORATED INTO CONCRETE WORK.
17. PROVIDE BONDING COMPOUND AT ALL LOCATIONS IN WHICH FRESH CONCRETE COMES IN CONTACT WITH CURED CONCRETE.

CODES AND STANDARDS:

1. INTERNATIONAL BUILDING CODE IBC (2009) INCLUDING THE MODIFICATIONS MADE BY LOCAL JURISDICTION.
2. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "STEEL CONSTRUCTION MANUAL THIRTEENTH EDITION".
3. AMERICAN CONCRETE INSTITUTE ACI-318 (08), "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE".
4. AMERICAN CONCRETE INSTITUTE ACI-350 (06), "ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES".
5. AMERICAN CONCRETE INSTITUTE ACI-530/ ASCE 5/ TMS 402, (08) "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES".
6. ALUMINUM ASSOCIATION "ALUMINUM DESIGN MANUAL" (2005).
7. AMERICAN SOCIETY OF CIVIL ENGINEERS ASCE 7 (05), "MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES".
8. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" (2009).

DESIGN LOADS:

1. DEAD LOADS:
   - A. STRUCTURES – ACTUAL WEIGHT
   - B. WEIGHT OF SOIL – 100 PCF FOR RESISTING UPLIFT
   - C. WEIGHT OF SOIL – 120 PCF FOR DEAD LOAD
2. LIVE LOADS:
   - A. FLOORS – 150 PSF IN AREAS NOT OCCUPIED BY EQUIPMENT OR TRUCK LOADING.
   - B. EQUIPMENT – ACTUAL WEIGHT OF EQUIPMENT OR MINIMUM 150 PSF.
12. SNOW LOAD:
   - A. GROUND SNOW LOAD (Pg) – 15 PSF.
   - B. EXPOSURE FACTOR (Ce) – 1.0
   - C. THERMAL FACTOR (Ct) – 1.0
   - D. SNOW LOAD IMPORTANCE FACTOR (I) – 1.1
   - E. REQUIRED Pf: (0.7)(1.0)(1.0)(1.1)(15) = 11.55 < I(Pg) = 16.5 PSF
   - F. SLOPED ROOF FACTOR (Cs) – 1.0
   - G. REQUIRED Ps: (Cs)(Pf) = 16.5 PSF
   - H. ADDITIONAL SNOW LOAD DUE TO SNOW DRIFT AND SLIDING SNOW PER ASCE 7-05 HAS BEEN CONSIDERED WHERE APPLICABLE.
3. ROOF LIVE LOAD – 20 PSF.
4. WIND LOAD:
   - A. BASIC WIND SPEED: 100 MPH
   - B. EXPOSURE CATEGORY: C
   - C. INTERNAL PRESSURE COEFFICIENT: +/- 0.55
   - D. WIND LOAD IMPORTANCE FACTOR (I): 1.15
   - E. BUILDING OCCUPANCY FACTOR: III
5. SEISMIC LOAD:
   - A. BUILDING OCCUPANCY CATEGORY: III
   - B. MAXIMUM EARTHQUAKE SPECTRAL RESPONSE ACCELERATION AT SHORT PERIOD: Ss: 0.132 g
   - C. MAXIMUM EARTHQUAKE SPECTRAL ACCELERATION AT ONE SECOND PERIOD: S1: 0.050 g
   - D. SITE CLASSIFICATION: D
   - E. SITE SEISMIC COEFFICIENTS: Fa: 1.6; Fv: 2.4
   - F. SPECTRAL RESPONSE COEFFICIENT: SDS: 0.141; SD1: 0.080
   - G. SEISMIC DESIGN CATEGORY: B
   - H. SEISMIC IMPORTANCE FACTOR (I): 1.25
   - I. BASIC SEISMIC FORCE RESISTING SYSTEM: ORDINARY PRECAST SHEAR WALLS
     - RESPONSE MODIFICATION FACTOR (R) = 3
     - SYSTEM OVER STRENGTH FACTOR (Ω) = 2.5
     - DEFLECTION AMPLIFICATION FACTOR (Cd) = 3
   - J. ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE
   - K. SEISMIC RESPONSE COEFFICIENT: 0.059
6. FOR FLOTATION CALCULATIONS, GROUND WATER TABLE ELEVATION IS ASSUMED AT THE ELEVATION OF THE FINISHED GRADE

LAP SPLICE LENGTH					MINIMUM TENSION EMBEDMENTS			
BAR SIZE	SLAB AND WALL		BEAM		STD 90° HOOK		STD 180° HOOK	
ENGLISH	OTHER BARS	TOP BARS	OTHER BARS	TOP BARS	ldh	12db	ldh	4db
#3	12"	14"	12"	14"	6"	5"	6"	3"
#4	14"	19"	18"	23"	7"	6"	7"	3"
#5	18"	23"	26"	34"	8"	8"	8"	3"
#6	21"	28"	35"	46"	10"	9"	10"	3"
#7	35"	45"	51"	67"	11"	11"	11"	4"
#8	44"	57"	59"	76"	13"	12"	13"	4"
#9	54"	70"	66"	86"	15"	14"	15"	5"
#10	66"	86"	74"	96"	16"	16"	16"	6"
#11	79"	103"	82"	107"	18"	17"	18"	6"

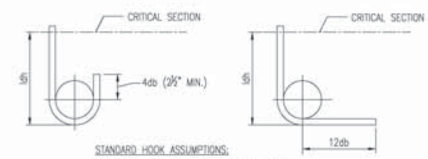
LAP SPLICE ASSUMPTIONS:

CONCRETE: 4500 PSI COMPRESSIVE STRENGTH (NORMALWEIGHT CONCRETE)

SLAB AND WALL: 6" MINIMUM REBAR SPACING WITH CONCRETE COVER = 1.5" CLEAR

BEAM: MINIMUM CLEAR SPACING BETWEEN BARS = 1.5 db (1.5" MIN). MINIMUM CONCRETE COVER = 1.5" CLEAR. MINIMUM STIRRUP #4@12" PROVIDED.

TOP BAR: TOP BAR FOR SLAB AND BEAM SHALL BE DEFINED AS REINFORCEMENT SO PLACED THAT MORE THAN 12" OF CONCRETE IS CAST BELOW THE SPLICE.



STANDARD HOOK ASSUMPTIONS:

SIDE COVER SHALL NOT BE LESS THAN 2.5"
END COVER ON 90° HOOK SHALL NOT BE LESS THAN 2"

STANDARD 180° AND 90° END HOOKS

TENSION LAP SPLICE AND STANDARD HOOK LENGTH (ACI 318-08/ACI 350-06)

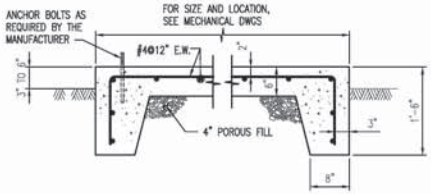
(NON-EPOXY COATED)

OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

WR&A
WHITMAN, REQUARDT & ASSOCIATES, LLP
11870 Merchants Walk, Suite 100, Newport News, VA 23606

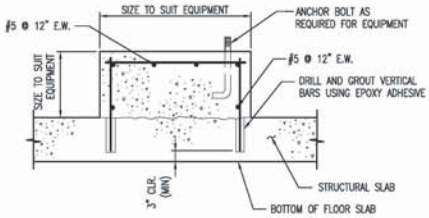
90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

OLD DOMINION UTILITY SERVICES 2023 HARRISON ROAD FORT EUSTIS, VIRGINIA, 23604 FEBRUARY 2013	SCALE NONE	OLD DOMINION UTILITY SERVICES ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION	STRUCTURAL NOTES	REV	DATE	DESCRIPTION	DRAWING S0.01	SHEET 17



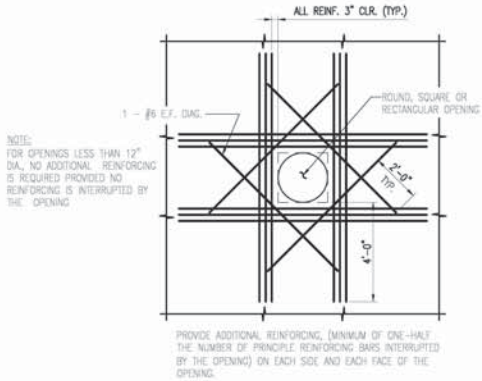
TYPICAL EXTERIOR EQUIPMENT PAD DETAIL

NO SCALE



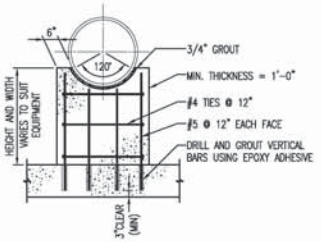
TYPICAL EQUIPMENT SUPPORT

NO SCALE



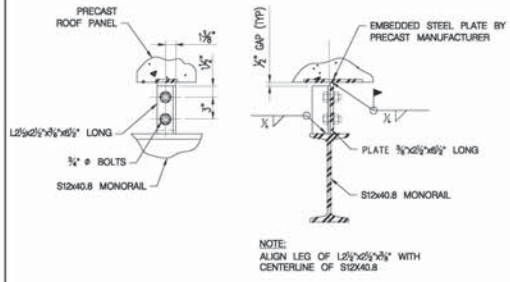
ADDITIONAL REINFORCING AROUND OPENINGS IN CONCRETE

NO SCALE



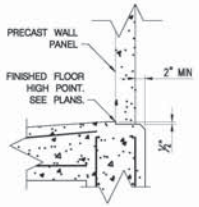
TYPICAL PIPE AND VALVE SUPPORT

SCALE: NONE



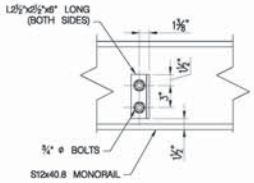
MONORAIL CONNECTION TO PRECAST ROOF DETAIL

NO SCALE



PRECAST WALL AT SLAB DETAIL

NO SCALE



MONORAIL WHEEL STOP DETAIL

NO SCALE

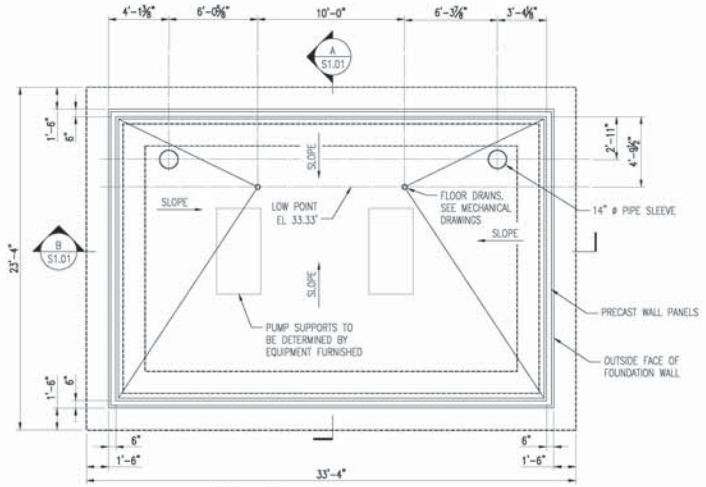
OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

WHITMAN, REQUARDT & ASSOCIATES, LLP
1870 Merchants Walk, Suite 100, Newport News, VA 23606

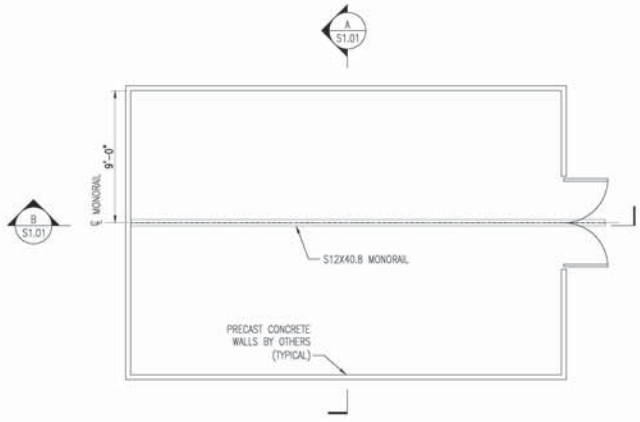
90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

REV	DATE	DESCRIPTION

OLD DOMINION UTILITY SERVICES 2023 HARRISON ROAD FORT EUSTIS, VIRGINIA, 23604 FEBRUARY 2013	SCALE AS NOTED	OLD DOMINION UTILITY SERVICES ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION	STRUCTURAL TYPICAL DETAILS	DRAWING S0.02	SHEET 18



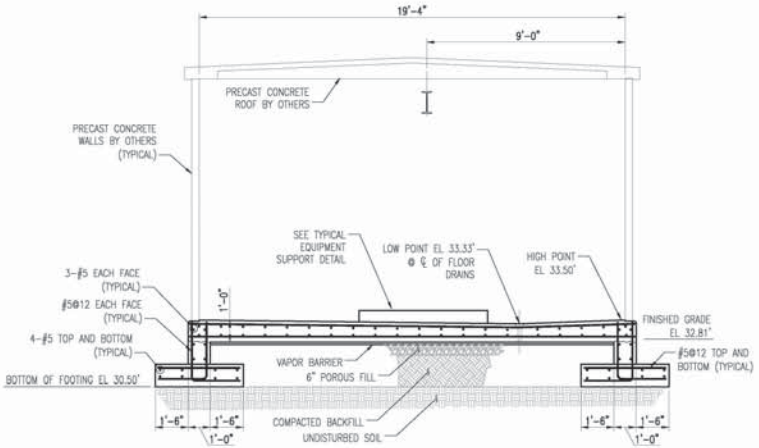
1 S1.01 FOUNDATION PLAN
1/4" = 1'-0"



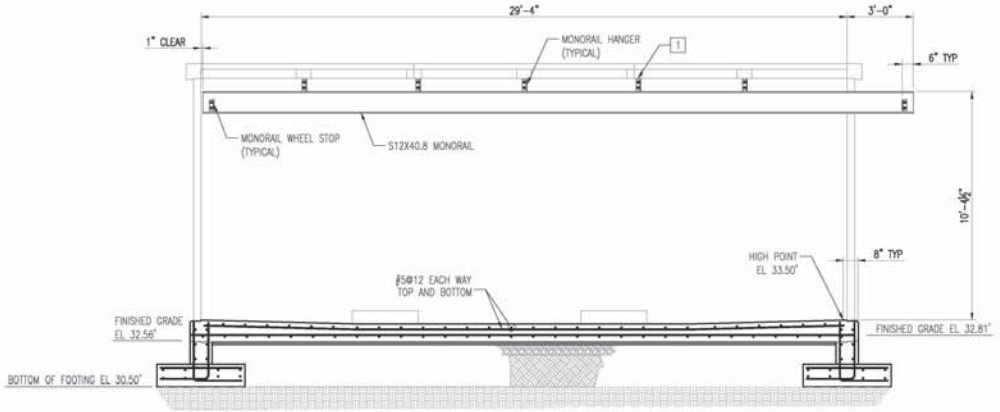
2 S1.01 FRAMING PLAN
1/4" = 1'-0"

CONSTRUCTION NOTES:

1. PRECAST MANUFACTURER TO SUPPLY EMBED PLATE FOR MONORAIL HANGER CONNECTIONS AT A MAXIMUM SPACING OF 5'-0" ON CENTER IN ROOF STEMS OR SLAB. EMBED PLATE SHALL BE DESIGNED FOR FACTORED REACTION OF 2 TON MONORAIL AND HOIST WEIGHT.



A S1.01 SECTION
3/8" = 1'-0"
REF: S1.01



B S1.01 SECTION
3/8" = 1'-0"
REF: S1.01

OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

WR&A
WHITMAN, REQUARDT & ASSOCIATES, LLP
1870 Merchants Walk, Suite 100, Newport News, VA 23606

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

SCALE: 1/4" = 1'-0"

SCALE: 3/8" = 1'-0"

REV	DATE	DESCRIPTION

OLD DOMINION UTILITY SERVICES
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA, 23604
FEBRUARY 2013

SCALE: AS NOTED

OLD DOMINION UTILITY SERVICES
ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION

PLANS AND SECTIONS

DRAWING: S1.01

SHEET: 19

MECHANICAL GENERAL NOTES:

1. MAKE PROPER CONNECTIONS TO FIXTURES AND EQUIPMENT. DRAWINGS ARE SCHEMATIC AND ALL BRANCHES, FITTINGS AND CONNECTIONS MAY NOT BE SHOWN.
2. COORDINATE LOCATION OF PIPING WITH LIGHTING FIXTURES, OTHER PIPING, EQUIPMENT AND BUILDING STRUCTURE. PIPING SHALL BE RUN TO AVOID CONFLICTS WITH OTHER TRADES.
3. MECHANICAL EQUIPMENT DIMENSIONS, LOCATIONS, AND PIPING SYSTEM LAYOUTS ARE BASED ON EQUIPMENT SELECTED BY THE ENGINEER. IF THE CONTRACTOR PROPOSES TO FURNISH EQUIPMENT THAT REQUIRES AN ARRANGEMENT OR SPACE DIFFERING FROM THAT INDICATED ON THE DRAWINGS OR SPECIFIED, THE CONTRACTOR SHALL PREPARE AND SUBMIT TO THE ENGINEER FOR APPROVAL, DETAILED ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL AND INSTRUMENTATION DRAWINGS AND EQUIPMENT LIST SHOWING ALL NECESSARY CHANGES AND EMBODYING ALL FEATURES OF THE PROPOSED EQUIPMENT. SUCH CHANGES, IF APPROVED BY THE ENGINEER, SHALL BE AT NO EXTRA COST TO THE OWNER.
4. NOT ALL AND ONLY CERTAIN TYPES OF SUPPORTS ARE SHOWN ON THE MECHANICAL DRAWINGS. UNLESS OTHERWISE DETAILED ON THE DRAWINGS, ALL PIPE AND DUCT SUPPORTS SHALL BE DESIGNED AND INSTALLED BY THE CONTRACTOR AS SPECIFIED AND TO THE APPROVAL OF THE ENGINEER.
5. THERMOSTAT SHALL BE MOUNTED 60" A.F.F. UNLESS OTHERWISE NOTED.

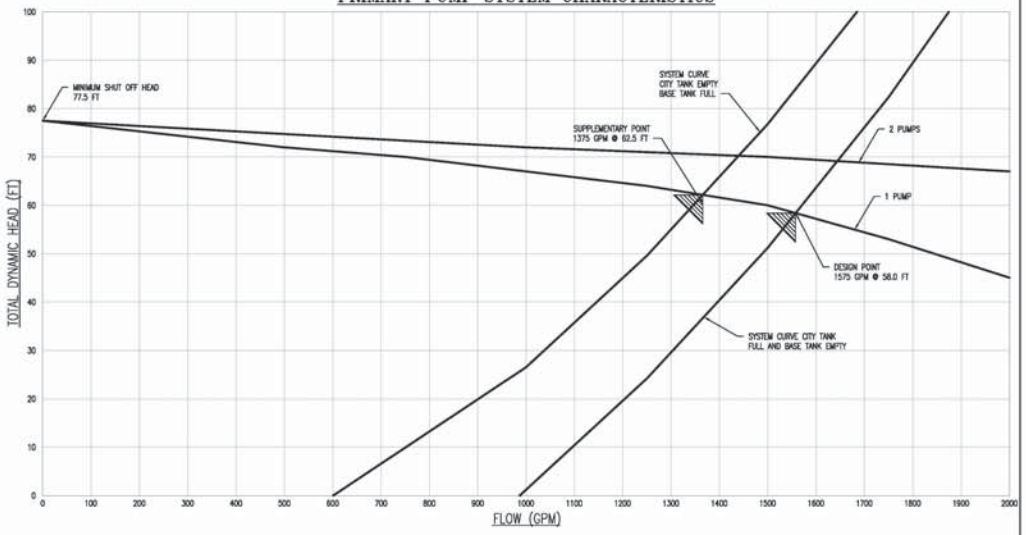
MECHANICAL ABBREVIATIONS:

&	AND	FLR	FLOOR	NIC	NOT IN CONTRACT
@	AT	FPM	FEET PER MINUTE	NO	NORMALLY OPEN
ABV	ABOVE	FRPM	FAN REVOLUTIONS PER MINUTE	No	NUMBER
AD	ACCESS DOOR	FT	FEET	NRS	NON RISING STEAM
ADJ	ADJUSTABLE	GAL	GALLONS	NTS	NOT TO SCALE
AFF	ABOVE FINISHED FLOOR	GALV	GALVANIZED	P	PUMP
AG	ABOVE GRADE	GPD	GALLONS PER DAY	PH	PHASE
AMPS	AMPERES	GPM	GALLONS PER MINUTE	PG	PRESSURE GAUGE
ARV	AIR RELIEF VALVE	H	HUMIDIFIER	PS	PRESSURE SENSOR
BDD	BACKDRAFT DAMPER	HB	HOSE BIB	PSI	POUNDS PER SQUARE INCH
BEL	BELOW	HD	HEAD	PVC	POLYVINYLCHLORIDE
BFP	BACK FLOW PREVENTER	HDPE	HIGH DENSITY POLYETHYLENE	QTY	QUANTITY
C	COMMON	HP	HORSEPOWER	RPM	REVOLUTIONS PER MINUTE
CFM	CUBIC FEET PER MINUTE	HS	HUMIDISTAT	SHT	SHEET
CLG	CEILING	HZ	HERTZ	SIM	SIMILAR
D-1	DAMPER DESIGNATOR	ID	IDENTIFICATION	S/M	SHEET METAL
D	DEPTH	IN	INCH	SP	STATIC PRESSURE
DEG F,°F	DEGREE FAHRENHEIT	INV	INVERT	SQ	SQUARE
DI	DUCTILE IRON	IR	INFRARED	SS	STAINLESS STEEL
DIA	DIAMETER	KW	KILOWATT	STL	STEEL
DIP	DUCTILE IRON PIPE	LF	LINEAR FEET	T	THERMOSTAT
DN	DOWN	LR	LONG RADIUS	TDH	TOTAL DYNAMIC HEAD
DWG	DRAWING	MAX	MAXIMUM	TEMP	TEMPERATURE
EF-1	EXHAUST FAN DESIGNATOR	MFR	MANUFACTURER	TOD	TOP OF DUCT
EF	EXHAUST FAN	MIN	MINIMUM	TYP	TYPICAL
EFF	EFFICIENCY	MJ	MECHANICAL JOINT	UH	UNIT HEATER
EL	ELEVATION	MISC	MISCELLANEOUS	UON	UNLESS OTHERWISE NOTED
EX, EXIST	EXISTING	MOD	MOTOR OPERATED DAMPER	V	VOLTS
EUH	ELECTRIC UNIT HEATER	MTD	MOUNTED	VFD	VARIABLE FREQUENCY DRIVE
EXH	EXHAUST	MV	MANUAL AIR VENT	VTR	VENT THROUGH ROOF
FIN	FINISHED	N	NORTH	W/	WITH
FLG	FLANGE, FLANGED	NC	NORMALLY CLOSED	WG	WATER GAUGE

MECHANICAL LEGEND:

- BALL VALVE
- BACKDRAFT DAMPER
- CHECK VALVE
- FLANGED CONNECTION
- FLEXIBLE CONNECTION
- FLOAT SWITCH
- GATE VALVE
- GATE VALVE IN RISE
- HUMIDISTAT
- MECHANICAL JOINT CONNECTION
- MOTOR OPERATED DAMPER
- PIPE UP
- PIPE DOWN
- PRESSURE GAUGE
- PRESSURE SENSOR
- REDUCER
- THERMOSTAT
- UNION
- UNIT HEATER

PRIMARY PUMP SYSTEM CHARACTERISTICS



NON-CLOG CENTRIFUGAL PUMP DESIGN CRITERIA:

MAXIMUM PUMP OPERATING SPEED:	1,800 RPM
MINIMUM SHUT-OFF HEAD:	77.5 FEET
DESIGN POINT TOTAL HEAD:	58.0 FEET
DESIGN POINT FLOW RATE:	1,575 GPM
DESIGN POINT MINIMUM EFFICIENCY	74%
DESIGN POINT NPSHR:	10 FEET
SUPPLEMENTARY POINT TOTAL HEAD:	62.5 FEET
SUPPLEMENTARY POINT FLOW RATE:	1,375 GPM
SUPPLEMENTARY POINT MINIMUM EFFICIENCY:	70%
SUPPLEMENTARY POINT NPSHR:	10 FEET
MAXIMUM BRAKE HORSEPOWER REQUIREMENT AT ANY POINT ON THE OPERATING CURVE:	40 HP
MINIMUM PASSING SOLID SIZE (MIN. DIAMETER):	1.4 INCHES
SUCTION DIAMETER	10 INCHES
DISCHARGE DIAMETER	8 INCHES

OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

WHITMAN, REQUARDT & ASSOCIATES, LLP
1870 Merchants Walk, Suite 100, Newport News, VA 23606

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

REV	DATE	DESCRIPTION

OLD DOMINION UTILITY SERVICES
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA, 23604
FEBRUARY 2013

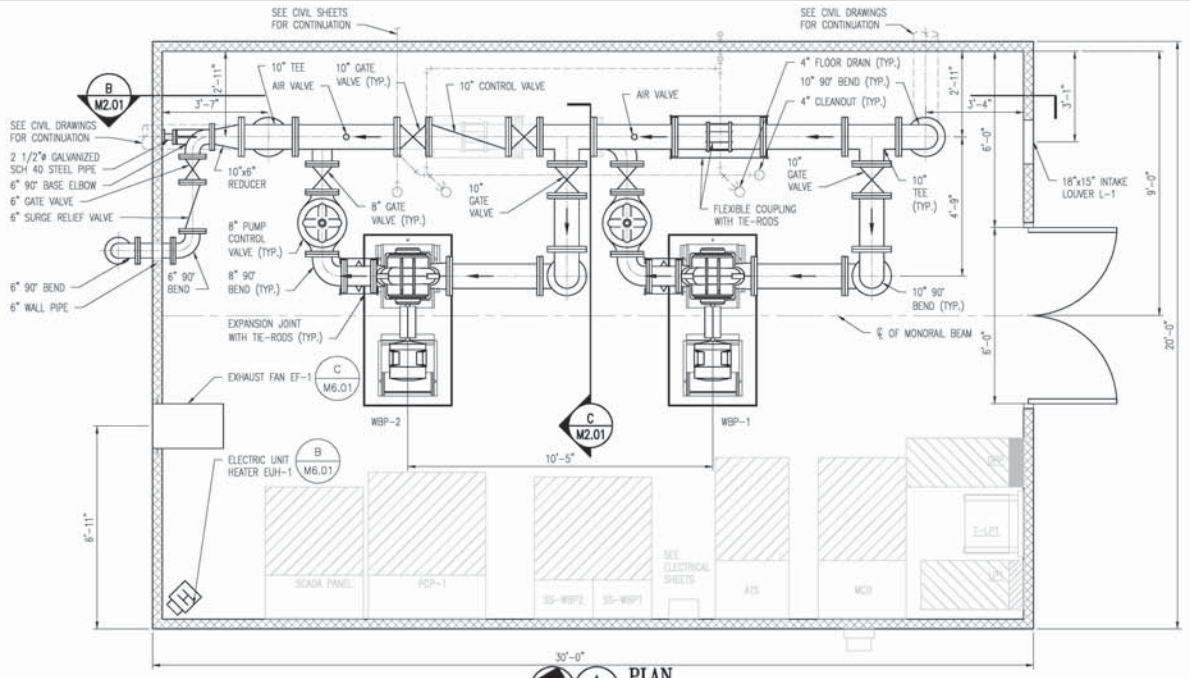
SCALE: NONE

OLD DOMINION UTILITY SERVICES
ALTERNATE WATER SUPPLY LINE
AND BOOSTER STATION

MECHANICAL NOTES, LEGENDS AND PUMP DESIGN CRITERIA

DRAWING: M0.01

SHEET: 20



A M2.01 **PLAN** SCALE: 1/2" = 1'-0"

GENERAL NOTES:

1. SIZE CONNECTIONS TO SUIT PUMP.
2. GROUT AND SEAL OPENINGS BETWEEN PUMP BASE AND CONCRETE PAD AFTER INSTALLATION.
3. ALL FLEXIBLE COUPLINGS, EXPANSION JOINTS, AND FLANGED ADAPTORS SHALL HAVE TIE-RODS. SEE DETAIL SHEET M6.01.
4. SEE CIVIL DRAWINGS FOR ALL FITTINGS AND JOINTS BELOW STATION FOUNDATION NOT SHOWN ON MECHANICAL DRAWINGS.
5. RUN ARV DRAIN LINE ALONG PIPE TO FLOOR, TERMINATE AT NEAREST FLOOR DRAIN, COORDINATE SUPPORTS REQUIRED. PROVIDE SERVICE SADDLE OR TAPPING BOSS AS NECESSARY.
6. CONTRACTOR TO COORDINATE ORIENTATION AND LOCATION OF VALVE OPERATORS TO ENSURE THERE ARE NO CONFLICTS.

ELECTRIC UNIT HEATER SCHEDULE

UNIT I.D.	kW	FAN RPM	FAN HP	ELECTRICAL CHARACTERISTICS AMPS/VOLTS/PH/HZ	REMARKS
EUH-1	5	1550	1/35	6.0/480/3/60	REMOTE LINE VOLTAGE THERMOSTAT

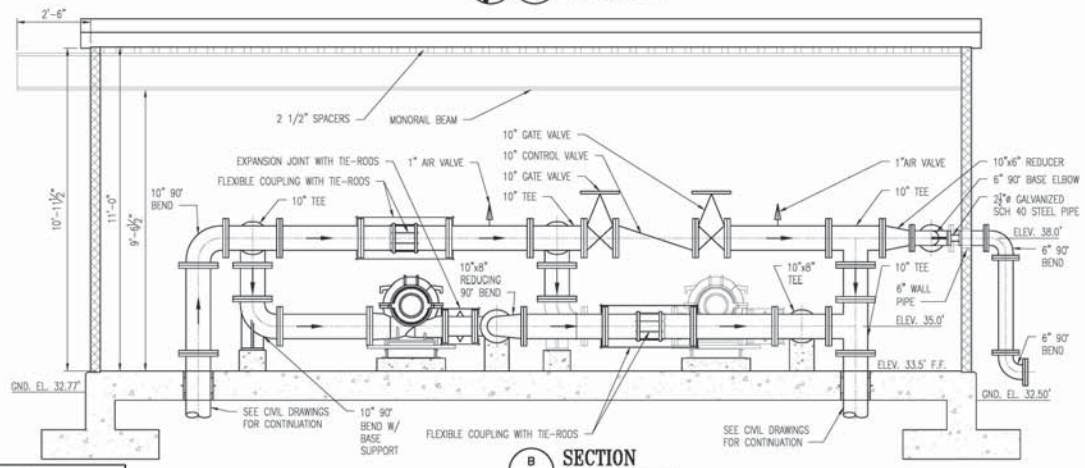
EXHAUST FAN SCHEDULE

UNIT I.D.	TYPE	DRIVE	TOTAL CAPACITY CFM	TOTAL S.P. IN W.C.	MAX. FAN RPM	ELECTRICAL CHARACTERISTICS VOLTS/PH/HZ	MIN. MOTOR HP	DAMPER	REMARKS
EF-1	P	D	720	0.20	1525	120/1/60	1/4	G	REFER TO SECTION 15500 FOR ADDITIONAL SPECIFICATIONS

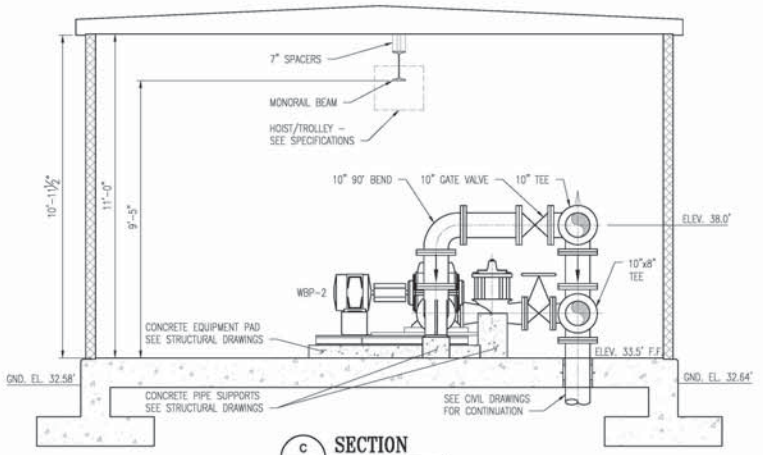
P = PANEL G = GRAVITY D = DIRECT DRIVE

LOUVER SCHEDULE

UNIT I.D.	AREA SERVED	LOUVER FACE WIDTH (IN.)	LOUVER FACE LENGTH (IN.)	LOUVER FACE AREA (SQ. FT.)	FREE AREA (SQ. FT.)	INTAKE AIR FLOW (SCFM)	FACE AREA VELOCITY (FPM)	FREE AREA VELOCITY (FPM)	PRESSURE DROP (IN. W.G.)	REMARKS
LV-1	BOOSTER STATION	16.00	16.00	1.78	0.6	720	405	1200	0.15	ACTUATOR VOLTAGE = 120



B M2.01 **SECTION** SCALE: 1/2" = 1'-0"



C M2.01 **SECTION** SCALE: 1/2" = 1'-0"

OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

WR&A
WHITMAN, REQUARDT & ASSOCIATES, LLP
1870 Merchants Walk, Suite 100, Newport News, VA 23606

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

0 1' 2' 4'
SCALE: 1/2" = 1'-0"

REV	DATE	DESCRIPTION

OLD DOMINION UTILITY SERVICES
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA, 23604
FEBRUARY 2013

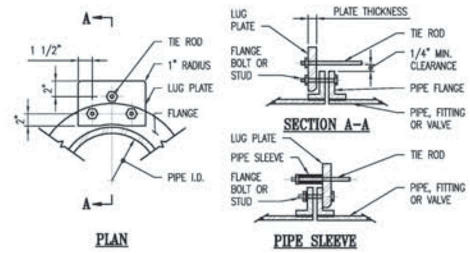
SCALE
1/2" = 1'-0"

OLD DOMINION UTILITY SERVICES
ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION

MECHANICAL PLANS AND SECTIONS

DRAWING M2.01

SHEET 21



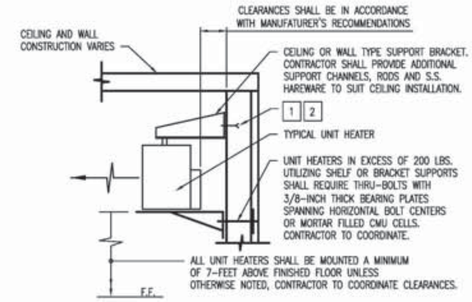
NOTE: IF PLATE IS REQUIRED TO BE MOUNTED ON REVERSE SIDE OF FLANGE, PROVIDE A PIPE SLEEVE AND WASHER ON THE END OF THE TIE ROD SO THAT THE MAXIMUM CLEARANCE BETWEEN THE SLEEVE AND THE FLANGE CAN BE MAINTAINED. FLANGE SURFACE IN CONTACT WITH LUG PLATE SHALL BE GROUND SMOOTH TO CLEAR THE CASTING IRREGULARITY AND EMBOSSED LETTERING. CONTACT SURFACE OF LUG PLATE SHALL BE MACHINED TO A ONE DEGREE TAPER FOR PIPE DIAMETERS 12-INCH AND LARGER.

DETAIL IS TYPICAL FOR BOTH ENDS. THE USE OF A FLANGE STOP OR SIMILAR COMPONENT SHALL NOT BE USED UNLESS NOTED OTHERWISE. THIS IS TO PREVENT THE PIPE, FITTING ADAPTER OR VALVE THAT IS BEING RESTRAINED TO BE TOTALLY REMOVED.

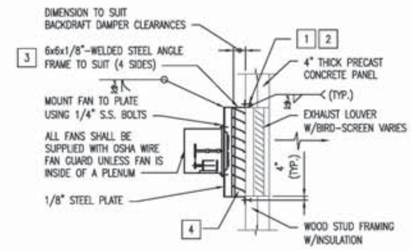
ROD MATERIAL - ASTM A193, Grade B7
PLATE MATERIAL - ASTM A36
SLEEVE MATERIAL - SCHEDULE 40 STEEL PIPE

PIPE SIZE	NUMBER OF RODS	DIAMETER OF RODS	PLATE THICKNESS	PIPE SLEEVE (IF REQUIRED)	DESIGN PRESSURE PSI
4"	2	3/4"	1/2"	3/4"	150
6"	2	3/4"	5/8"	3/4"	150
8"	2	3/4"	3/4"	3/4"	150
10"	2	3/4"	3/4"	3/4"	150
12"	2	3/4"	3/4"	3/4"	150

A M6.01 TIE ROD DETAIL
SCALE: NONE



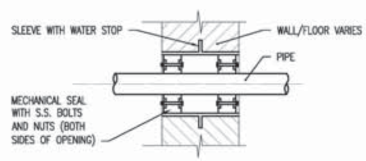
B M6.01 TYPICAL UNIT HEATER DETAIL
SCALE: NONE



C M6.01 TYPICAL EXHAUST FAN DETAIL
SCALE: NONE

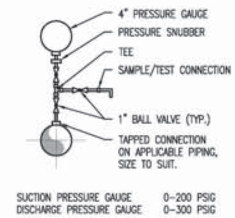
HVAC DETAIL NOTES:

1. FOR ANCHORING USE HILTI STD. (HIT) ADHESIVE ANCHOR. CONTRACTOR SHALL COORDINATE ANCHOR PENETRATION THROUGH WOOD STUD FRAMING WITH EMBEDMENT IN PRECAST CONCRETE PANEL TO SUIT PANEL INSTALLATION AND ANCHOR MANUFACTURER RECOMMENDED EMBEDMENT DEPTHS. ANCHORS SHALL BE SPACED ACCORDING TO MANUFACTURERS SPECIFICATIONS.
2. ANCHORS SHALL BE SPACED ACCORDING TO MANUFACTURER'S RECOMMENDED SPACING FOR INSTALLATION IN PRECAST PANELS.
3. FRAME AND PLATE SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
4. ALL DAMPERS SHALL MATCH IN NOMINAL SIZE WITH THEIR RESPECTIVE LOUVERS UNLESS OTHERWISE INDICATED ON THE CONTRACT DRAWINGS.



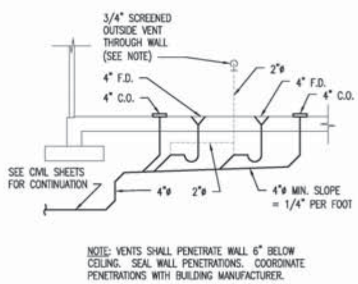
NOTE: FOR FLOOR APPLICATIONS, SLEEVE SHOULD EXTEND A MINIMUM OF 2" ABOVE FINISHED FLOOR ELEVATION.

D M6.01 SLEEVE DETAIL
SCALE: NONE



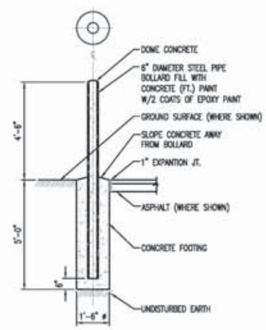
SUCTION PRESSURE GAUGE 0-200 PSIG
DISCHARGE PRESSURE GAUGE 0-300 PSIG

E M6.01 PRESSURE GAUGE WITH PRESSURE SNUBBER DETAIL
SCALE: NONE



NOTE: VENTS SHALL PENETRATE WALL 6" BELOW CEILING. SEAL WALL PENETRATIONS. COORDINATE PENETRATIONS WITH BUILDING MANUFACTURER.

F M6.01 FLOOR DRAIN SCHEMATIC
SCALE: NONE



G M6.01 BOLLARD
SCALE: NONE

OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

WR&A
WHITMAN, REQUARDT & ASSOCIATES, LLP
11870 Merchants Walk, Suite 100, Newport News, VA 23606

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

OLD DOMINION UTILITY SERVICES 2023 HARRISON ROAD FORT EUSTIS, VIRGINIA, 23604 FEBRUARY 2013	SCALE NONE	OLD DOMINION UTILITY SERVICES ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION	MECHANICAL DETAILS	DRAWING M6.01	SHEET 22

REV	DATE	DESCRIPTION

ELECTRICAL LEGEND (SCHEMATICS AND WIRING DIAGRAMS)

PLANS SYMBOLS

SWITCHES

- S — SINGLE POLE SWITCH
- S_3 — THREE WAY SWITCH, 20A, 120-277V.
- S_3^a — THREE WAY SWITCH, 20A, 120-277V. a=CONTROLLING SWITCH

LIGHTS

- $\square_1^a$ — 1' x 4' FLUORESCENT CEILING MOUNTED LIGHTING FIXTURE. NUMBER ADJACENT TO LIGHT DENOTES RESPECTIVE CIRCUIT NUMBER a=CONTROLLING SWITCH
- $\bigcirc_a^1$ — WALL MOUNTED METAL HALIDE LIGHTING FIXTURE, NUMBER ADJACENT TO LIGHT DENOTES RESPECTIVE CIRCUIT NUMBER, a=CONTROLLING SWITCH
- MS_a — WALL MOUNTED OUTDOOR MOTION SENSOR, a=CONTROLLING SWITCH
- $\triangle^A$ — LIGHTING FIXTURE TYPE, SEE LIGHTING FIXTURE SCHEDULE, SHEET E7-01.
- EMERGENCY BATTERY POWERED LIGHTING UNIT
- EXIT SIGN WITH BATTERY POWERED LIGHTING UNIT

RECEPTACLES

- WP_{GFI} — DUPLEX RECEPTACLE (120V, 20A), SUBSCRIPT "G" INDICATES GFI TYPE, MOUNT 24" AFF UON, "WP" INDICATES WEATHERPROOF

EQUIPMENT CONNECTIONS

- J — JUNCTION BOX
- T — DRY TYPE TRANSFORMER, SIZE AS INDICATED.
- EH — ELECTRICAL UNIT HEATER
- $\frac{30}{3}$ — DISCONNECT SWITCH, NON-FUSED, SUBSCRIPT INDICATES AMPACITY AND NO. OF POLES, 3P-30A UON.
- $\frac{30}{3}$ — COMBINATION MAGNETIC STARTER WITH NON-FUSED DISCONNECT SWITCH. 1= NEMA STARTER SIZE, NEMA SIZE 1 UON. 30/3= INDICATES DISCONNECT SWITCH SIZE AND POLES 3P-30A UON.

GROUNDING

- $\odot_B$ — 3/4" DIAMETER x 10' LONG GROUND ROD
- $\odot_A$ — GROUND ROD WITH TEST WELL
- $\otimes$ — AIR TERMINAL

TELEPHONE

UNDERGROUND SITE WORK

- UNDERGROUND DUCTBANK

WIRING

- RACEWAY BELOW SLAB OR IN SLAB OR CONCEALED
- RACEWAY EXPOSED
- RACEWAY TURNED UP OR TOWARDS VIEWER
- RACEWAY TURNED DOWN OR AWAY FROM VIEWER
- LP1-1,3,5 — BRANCH CIRCUIT HOME RUN TO PANELBOARD, LP1 DENOTES TO PANEL LP1 AND NUMERALS IDENTIFY CIRCUIT NUMBERS, #12 AWG CONDUCTORS U.O.N., NO. OF CONDUCTORS AS REQUIRED. PROVIDE GROUND WIRE IN ALL CONDUITS

PANELBOARD

- ELECTRICAL PANELBOARD (208/120V, 3ø, 4W)
- ELECTRICAL PANELBOARD (480V, 3ø, 3W)

MISCELLANEOUS

- $\frac{X1}{X2}$ — X1 - DESIGNATION OF PLAN (1, 2, 3...) X2 - DRAWING WHERE PLAN IS LOCATED
- SEE SHEET G1-02 FOR ADDITIONAL INFORMATION
- [1] — KEYED NOTE

SCHEMATIC SYMBOLS

- $\frac{225}{200}$ — MOLDED CASE CIRCUIT BREAKER, TRIP VALUE INDICATED BELOW LINE AND FRAME SIZE ABOVE. 3 POLES UNLESS OTHERWISE NOTED.
- 100:5 — CURRENT TRANSFORMER, RATIO AS INDICATED. NO. ADJACENT INDICATES NUMBER OF CT'S.
- TRANSFORMER
- 50A — FUSE WITH RATING
- PM — POWER MONITOR
- 3 PHASE, 3 WIRE, DELTA
- 3 PHASE, 4 WIRE, GROUNDED WYE
- GROUND CONNECTION
- SPD — SURGE PROTECTION DEVICE
- MOTOR
- G — GENERATOR
- 1 — FEEDER DESIGNATION
- SS — SOLID STATE STARTER
- N / E — ATS - AUTOMATIC TRANSFER SWITCH WITH ISOLATION BYPASS
- S_M — MANUAL MOTOR STARTER SWITCH WITH OVERLOAD. PROVIDE HOA AS REQUIRED.

GENERAL NOTES

1. INSTALLATION OF ALL WIRING AND CONDUITS SHALL CONFORM WITH LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NFPA 70 AND LOCAL CODES).
2. CONDUIT RUNS ARE SHOWN DIAGRAMMATICALLY ONLY AND SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT AND STRUCTURAL CONDITIONS. EXPOSED CONDUITS SHALL BE INSTALLED PARALLEL TO THE BEAMS AND WALLS.
3. PROVIDE ALL REQUIRED PULL BOXES AND JUNCTION BOXES FOR INSTALLATION OF THE WIRING IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS THOUGH THE BOXES MAY NOT BE INDICATED ON THE DRAWINGS.
4. FINAL LOCATIONS FOR ALL ELECTRICAL EQUIPMENT, INCLUDING RECEPTACLES, JUNCTION BOXES FOR SPECIFIED EQUIPMENT, LIGHTING FIXTURES, SWITCHES, ETC. SHALL BE APPROVED BY THE COUNTY PRIOR TO INSTALLATION.
5. THE WIRING DIAGRAMS, QUANTITY AND SIZE OF WIRES AND CONDUITS ARE BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. MODIFICATIONS APPROVED BY THE COUNTY MAY BE MADE BY THE CONTRACTOR AT HIS EXPENSE TO ACCOMMODATE EQUIPMENT ACTUALLY PURCHASED.
6. PROVIDE ALL NECESSARY COMPONENTS REQUIRED FOR MAKING FINAL CONNECTION OF ALL EQUIPMENT IN THIS CONTRACT.
7. ALL ALARM INDICATION AND CONTROL WIRING IN JUNCTION BOXES SHALL BE WIRED TO NUMBERED TERMINAL STRIPS AND IDENTIFIED AS TO START AND END OF RUN.
8. ALL ELECTRICAL EQUIPMENT INSTALLED AGAINST CONCRETE OR MASONRY WALLS SHALL BE INSTALLED WITH A 1/4" SPACE BETWEEN THE EQUIPMENT AND THE MOUNTING SURFACE. SPACERS SHALL BE STAINLESS STEEL, PVC OR NYLON.
9. ELECTRICAL ENCLOSURES LOCATED OUTDOORS AND INDOORS IN WET AND DAMP LOCATIONS SHALL BE WEATHERPROOF NEMA 4X, UNLESS OTHERWISE NOTED.
10. DRAWINGS ARE DIAGRAMMATIC. ACTUAL LOCATION OF EQUIPMENT TO BE DETERMINED IN THE FIELD. NEW EQUIPMENT SHALL FIT INTO AVAILABLE SPACE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE EQUIPMENT WHICH MEETS THE SPACE REQUIREMENT. RELOCATION OF EQUIPMENT TO FIT INTO AVAILABLE SPACE SHALL BE ACCOMPLISHED AT NO ADDITIONAL COST TO THE OWNER. PROVIDE REVISED LAYOUT FOR APPROVAL.
11. COORDINATE WORK SCHEDULE WITH THE COUNTY. WORK WILL BE ALLOWED IN CERTAIN AREAS AND GOVERNED BY EXISTING SECURITY REGULATIONS AT THE FACILITY. WORK SHALL ALLOW FOR DAILY OPERATION OF THE FACILITY WITHOUT INTERRUPTION.
12. SUBMIT A LIST OF ALL MAJOR EQUIPMENT AND FIXTURES TO THE ENGINEER FOR REVIEW AND APPROVAL. NO SUBSTITUTIONS WILL BE ALLOWED WITHOUT THE PERMISSION OF THE ENGINEER IN WRITING. ALL EQUIPMENT SHALL BE NEW AND BEAR THE MANUFACTURER'S NAME AND TRADE NAME ALL EQUIPMENT SHALL BE UL LISTED.
13. ALL ELECTRICAL DRAWINGS ARE PREPARED IN ENGLISH UNITS. WIRE SIZE IS INDICATED IN THE AMERICAN WIRE GAUGE. ALL CONDUIT SIZES ARE INDUSTRY STANDARD.
14. THE CIRCUIT NUMBERS ARE FOR IDENTIFICATION PURPOSE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR BALANCING LOADS AND CORRECTLY PHASING THE CIRCUITS IN PANELBOARD.
15. ELECTRICAL REQUIREMENTS FOR MECHANICAL EQUIPMENT ARE BASED ON EQUIPMENT SPECIFIED. COORDINATE EXACT REQUIREMENTS WITH MECHANICAL SHOP DRAWINGS PRIOR TO ORDERING AND INSTALLING EQUIPMENT.
16. VERIFY ALL DOOR SWINGS BEFORE SETTING SWITCHES. INSTALL SWITCHES ON THE LOCK SIDE OF DOORS 4'-0" AFF, UNLESS OTHERWISE NOTED.
17. WHERE ELECTRICAL INSTALLATIONS DEPEND UPON WORK OF OTHER TRADES, THE CONTRACTOR SHALL ENSURE THAT NECESSARY INSTRUCTIONS, TEMPLATES, MATERIALS, ETC. ARE PROVIDED AND SUPERVISE THE WORK OF THE OTHER TRADES FOR QUALITY AND CODE COMPLIANCE.
18. VISIT THE JOB SITE AND EXAMINE THE EXISTING CONDITIONS THAT MAY AFFECT HIS WORK.
19. OPENINGS AND PASSAGE OF CONDUITS OR WIREWAYS THROUGH FLOOR SLABS AND FIRE RATED WALLS OR PARTITIONS SHALL BE PROVIDED WITH UL LISTED FIRE RATED SLEEVING
20. ALL JUNCTION AND PULL BOXES SHALL BE LABELED WITH THEIR VOLTAGE AND USAGE.
21. CUT AND PATCH SLABS, CEILING, ROOF, FLOOR, WALL, ROADWAY AND OTHER SURFACES AS NECESSARY TO ACCOMPLISH CONSTRUCTION WORK UNDER THIS CONTRACT.
22. CONTRACTOR SHALL COORDINATE AND OBTAIN APPROVAL OF ALL WORK RELATED TO ELECTRICAL SERVICE FROM POWER COMPANY.
23. NOT USED
24. SERIES RATING OF CIRCUIT BREAKERS SHALL NOT BE ALLOWED.
25. MINIMUM WIRE SIZE SHALL BE #12 UON. MINIMUM CONDUIT SIZE SHALL BE 3/4" UON.
26. ALL MAJOR EQUIPMENT SHALL HAVE A 4" HIGH HOUSE KEEPING PAD EXTENDING A MINIMUM OF 4" BEYOND THE EQUIPMENT ON ALL SIDES, UON

ABBREVIATIONS

A	AMPERE
AIC	AMPS INTERRUPTING CAPACITY
AC	ALTERNATING CURRENT
AFF	ABOVE FINISHED FLOOR
AMP	AMPERES
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAGE
BFG	BELOW FINISHED GRADE
BFP	BACKFLOW PREVENTER
BCSD	BARE COPPER SOFT DRAWN
BP	BOOSTER PUMP
CB	CIRCUIT BREAKER
CBP	CITY BOOSTER PUMP
CKT	CIRCUIT
COMM	COMMUNICATIONS
CO	CONDUIT ONLY
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CT	CURRENT TRANSFORMER
DB	DIRECT BURIED
DISC SW	DISCONNECT SWITCH
DPP	DISTRIBUTION POWER PANEL
DVP	DOMINION VIRGINIA POWER
DWG	DRAWING
E	EMERGENCY
EC	EMPTY CONDUIT
EF	EXHAUST FAN
EH	ELECTRIC HEATER
ELEC	ELECTRIC, ELECTRICAL
EUH	ELECTRIC UNIT HEATER
EUHC	ELECTRIC UNIT HEATER CORRISION PROOF
FDTS	FUEL DAY TANK SYSTEM
FLSCP	FUEL LEVEL SYSTEM CONTROL PANEL
FVNR	FULL VOLTAGE, NON REVERSING
GB	GROUND BUS
GFI	GROUND FAULT INTERRUPTER
G, GND	GROUND
GRS	GALVANIZED RIGID STEEL CONDUIT
H	HEAT
HID	HIGH INTENSITY DISCHARGE LTG
HOA	HAND OFF AUTO SELECTOR SWITCH
HP	HORSE POWER
HPS	HIGH PRESSURE SODIUM
IC	INSULATED CASE
JB	JUNCTION BOX
kA	KILO AMPERES
kAIC	KILO AMP INTERRUPTION CAPACITY
kCMIL	THOUSAND CIRCULAR MILS
kV	KILOVOLT
kVA	KILOVOLT AMPERES
kW	KILAWATT
kWH	KILOWATT HOUR
L	LOAD
LFMC	LIQUIDTIGHT FLEXIBLE METAL CONDUIT
LO	LOCKOUT
LP	LIGHTING PANEL
LPS	LIGHTING PROTECTION SYSTEM
LTG	LIGHTING
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDS	MAIN DISTRIBUTION SWITCHBOARD
MGB	MAIN GROUND BAR
MH	MOUNTING HEIGHT
M.H.	METAL HALIDE
MIN	MINIMUM
MOD	MOTOR OPERATED DAMPER
MS	MOTION SENSOR
N	NEUTRAL
NC	NORMALLY CLOSED
NEMD	NATIONAL ELECTRIC MANUFACTURER ASSOCIATION
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN, NUMBERS
NTS	NOT TO SCALE
P	POLE
PB_STA	PUSHBUTTON STATION
PCP	PUMP CONTROL PANEL
PM	POWER MONITOR
PNL	PANEL
PSI	POUNDS PER SQUARE INCH
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
RMS	ROOT MEAN SQUARE
ROW	RIGHT OF WAY
SC	SHORTING CONTACTOR
SPD	SURGE PROTECTION DEVICE
SS	SOFT STARTER
SSS	SOLID STATE STARTER
SW	SWITCH
SYMM.	SYMMETRICAL
T	TRANSFORMER
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
V	VOLTS
VA	VOLTS AMPS
W	WATT
W	WIRE
WBP	WATER BOOSTER PUMP
WP	WEATHERPROOF CONSTRUCTION
WSR	WITHSTAND RATING
XFMR	TRANSFORMER
Z	IMPEDANCE
ø	PHASE

REV	DATE	DESCRIPTION

OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

WHITMAN, REQUARDT & ASSOCIATES, LLP
1180 Merchants Walk, Suite 100, Newport News, VA 23606

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

OLD DOMINION UTILITY SERVICES
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA, 23604
FEBRUARY 2013

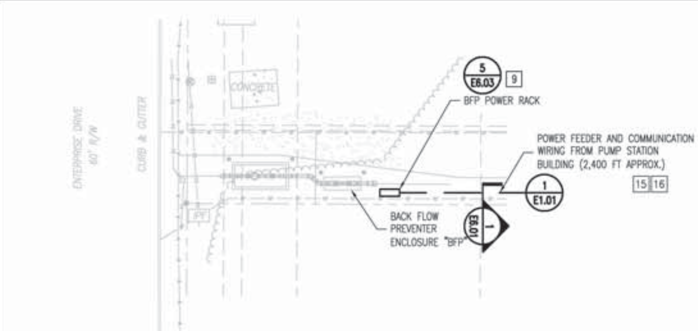
SCALE
AS NOTED

OLD DOMINION UTILITY SERVICES
ALTERNATE WATER SUPPLY LINE
AND BOOSTER STATION

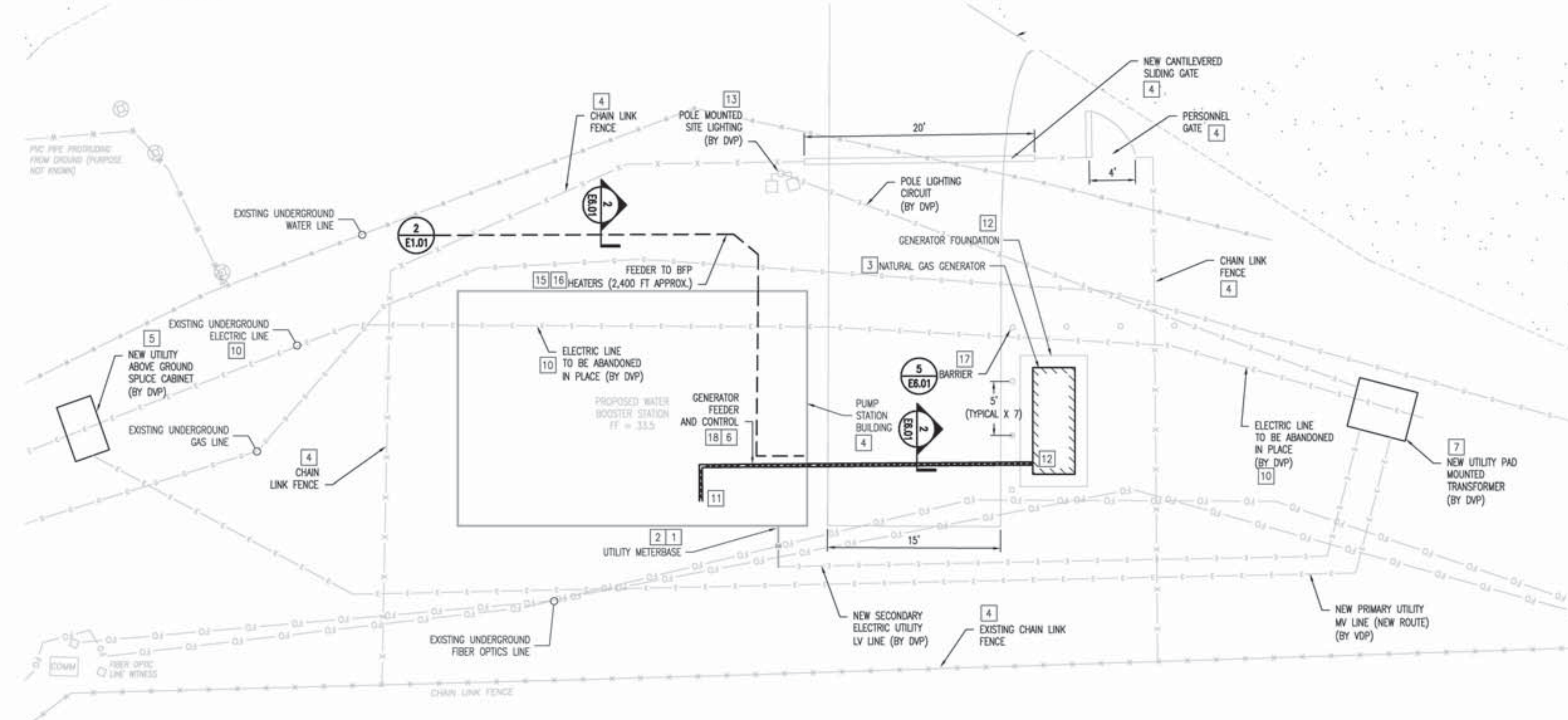
ELECTRICAL GENERAL NOTES, SYMBOLS & ABBREVIATIONS

DRAWING: E0.01

SHEET: 23



2 E1.01 ELECTRICAL SITE PLAN
SCALE: 1" = 5'-0"



1 E1.01 ELECTRICAL SITE PLAN
SCALE: 1" = 5'-0"

GENERAL NOTES:

1. REFER TO SHEET E0-01 FOR SYMBOLS, ABBREVIATIONS, AND GENERAL NOTES.
2. REFER TO DRAWING E4-01 FOR GROUNDING AND E4-02 FOR LIGHTNING PROTECTION SYSTEM PLANS.
3. REFER TO DRAWING E5-01 FOR ELECTRICAL SINGLE LINE DIAGRAM.
4. REFER TO DRAWING E6-01 THRU E6-03 FOR ELECTRICAL DETAILS.
5. REFER TO DRAWING E7-01 FOR ELECTRICAL FEEDER SCHEDULE.
6. COORDINATE WITH DOMINION VIRGINIA POWER ELECTRIC UTILITY COMPANY "DVP" FOR WORK RELATED TO ELECTRIC UTILITY SECONDARY SERVICE LATERAL.

SPECIFIC NOTES

1. UTILITY METERBASE PROVIDED BY DVP.
2. INSTALL UTILITY METERBASE PROVIDED BY DVP. CONDUCTOR TERMINATIONS PER ELECTRIC UTILITY COMPANY STANDARDS. COORDINATE WITH DVP FOR TERMINATION OF WIRING.
3. PROVIDE CONCRETE PAD MOUNTED NATURAL GAS GENERATOR, EQUIPMENT AND CONCRETE PAD, PROVIDE POWER FEEDER, AND CONTROL/SIGNAL WIRING FROM THIS LOCATION TO THE ATS, AND SCADA PANEL RESPECTIVELY.
4. PROVIDE GROUNDING, BONDING, AND LIGHTNING PROTECTION SYSTEM TO THE PUMP STATION BUILDING AND CHAIN LINK FENCE.
5. UTILITY ABOVE GROUND CABINET FOR PRIMARY CABLE BY DVP.
6. CONDUITS UNDER CONCRETE BUILDING FOUNDATION SHALL BE INSTALLED DIRECT BURIED.
7. TRANSFORMER AND TRANSFORMER PAD BY DOMINION VIRGINIA POWER UTILITY(DVP).
8. NOT USED
9. PROVIDE BACKFLOW PREVENTER POWER RACK AND STRUCTURAL SUPPORT. PROVIDE GROUNDING AND BONDING. CONTRACTOR SHALL INSTALL STRUCTURE TO CARRY THE TOTAL WEIGHT + 100% WEIGHT OF ALL EQUIPMENT. STRUCTURAL SUPPORT SHALL NOT EXTEND HIGHER THAN THE BACKFLOW PREVENTER ENCLOSURE.
10. EXISTING UNDERGROUND ELECTRIC MV UTILITY CABLES TO BE ABANDONED IN PLACE BY DVP. DVP WILL TRACED, IDENTIFIED, SPLICE MV CABLES WITHIN NEW ABOVE GROUND SPLICE CABINET FOR PRIMARY CABLES.
11. COORDINATE CONCRETE SLAB CONDUIT PENETRATIONS WITH EQUIPMENT MANUFACTURER SHOP DRAWINGS.
12. PROVIDE CONCRETE PAD. COORDINATE CONCRETE PAD CONDUIT PENETRATIONS WITH EQUIPMENT MANUFACTURER SHOP DRAWINGS.
13. OUTDOOR POLE AND POLE LIGHTS BY DVP. 40 FT FIBERGLASS POLE W/2-250W HPS DIRECTIONAL FIXTURES.
14. NOT USED.
15. PROVIDE 20"LX14"W MIN. UNDERGROUND PULL BOXES/ENCLOSURES. SPACED THEM AT 400 FT MAX. INTERVALS. SEE DRAWING E6-01 DETAIL 3 FOR REQUIREMENTS.
16. PROVIDE 2-2" DIRECT BURIED PVC SCHEDULE 80 CONDUIT FOR POWER BRANCH CIRCUIT AND COMMUNICATION TO BACK FLOW PREVENTER LOCATED AT 2,400 FT APPROX. FROM PUMP STATION BUILDING. REFER TO CIVIL DRAWINGS C1-01 TO C1-06 FOR ROUTING OF CONDUIT AND LOCATION OF BFP.
17. PROVIDE REMOVABLE BARRIERS. REFER TO DVP BARRIERS STANDARDS. UON. COORDINATE CLEARANCE WITH DVP.
18. PROVIDE GENERATOR UNDERGROUND 3-WAY DUCTBANK, AND CABLES. COORDINATE WITH CIVIL DRAWINGS TO CLEAR EXISTING AND NEW PIPES AND CONDUITS. COORDINATE WITH ATS AND GENERATOR EQUIPMENT MANUFACTURER SHOP DRAWINGS FOR BUILDING CONCRETE SLAB CONDUIT PENETRATIONS, AND CABLE TERMINATIONS AT BOTH ENDS.

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

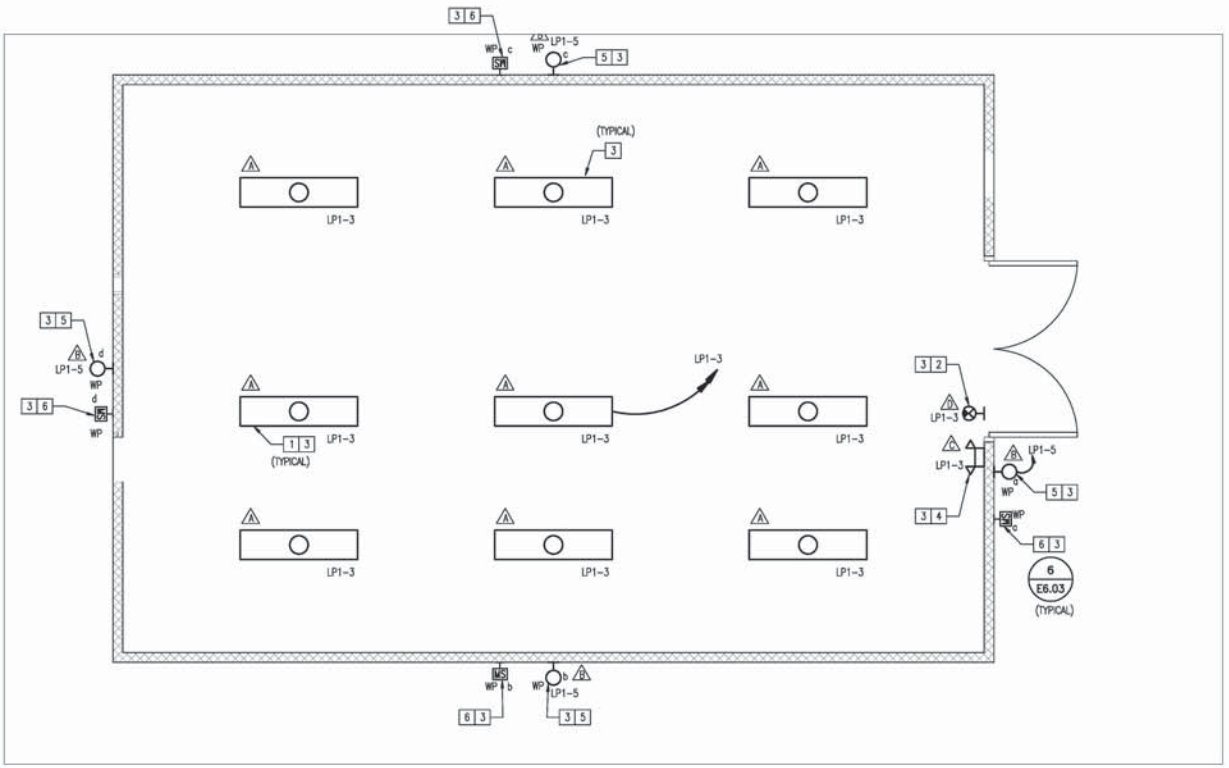
SCALE: 1" = 5'

OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

WR&A
WHITMAN, REQUARDT & ASSOCIATES, LLP
11870 Merchants Walk, Suite 100, Newport News, VA 23606

OLD DOMINION UTILITY SERVICES 2023 HARRISON ROAD FORT EUSTIS, VIRGINIA, 23604 FEBRUARY 2013	SCALE AS NOTED	OLD DOMINION UTILITY SERVICES ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION	ELECTRICAL SITE PLAN	DRAWING E1.01	SHEET 24

REV	DATE	DESCRIPTION



ELECTRICAL LIGHTING PLAN

1 / E2.01 SCALE: 1/2" = 1'-0"

DRAWING NOTES

1. REFER TO DRAWING E0-01 FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
2. REFER TO DRAWING E3-01 FOR ELECTRICAL POWER PLAN.
3. REFER TO DRAWING E4-01 FOR ELECTRICAL GROUNDING PLAN.
4. REFER TO DRAWING E5-01 FOR ONE LINE AND RISER DIAGRAMS.
5. REFER TO DRAWINGS E6-01 THRU E6-03 FOR ELECTRICAL DETAILS.
6. REFER TO DRAWING E7-01 FOR ELECTRICAL LIGHTING FIXTURE AND PANELBOARD SCHEDULES.
7. CONNECT EMERGENCY BATTERY PACK AND EXIT LIGHTS TO NORMAL LIGHTING CIRCUIT AHEAD OF SWITCH. CONNECT TO NEAREST NORMAL CIRCUIT. PROVIDE 2#12, 1#12G- 3/4" CONDUIT AND MAKE FINAL CONNECTION.

SPECIFIC NOTES

1. PROVIDE 1' X 4' CEILING MOUNTED LIGHTING FIXTURE.
2. PROVIDE WALL MOUNTED SINGLE FACE LED EXIT SIGN.
3. COORDINATE EXACT LOCATION PRIOR TO INSTALLATION OF LIGHTING FIXTURES.
4. PROVIDE TWO HEAD EMERGENCY LIGHT FIXTURES WITH SELF PACK BATTERY BACKUP.
5. PROVIDE WALL MOUNTED LIGHT FIXTURE AND MOTION SENSOR. PROVIDE POWER AND CONTROL WIRING. WEATHERPROFF ENCLOSURE.
6. PROVIDE OUTDOOR MOTION SENSORS TO CONTROL OUTDOOR LIGHTING FIXTURES. PROVIDE WIRING AS RECOMMENDED BY MANUFACTURER. THE MOTION SENSOR SHALL BE RAINTIGHT AND RATED FOR -40 DEGREES F TO 130 DEGREES F. THE MOTION SENSOR SHALL HAVE ADVANCED PIR TECHNOLOGY, OPERATE AT LINE VOLTAGE AND SHALL HAVE 270 DEGREE COVERAGE PATTERN. MOUNTING HEIGHT SHALL BE 10'-0" AFG.

OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

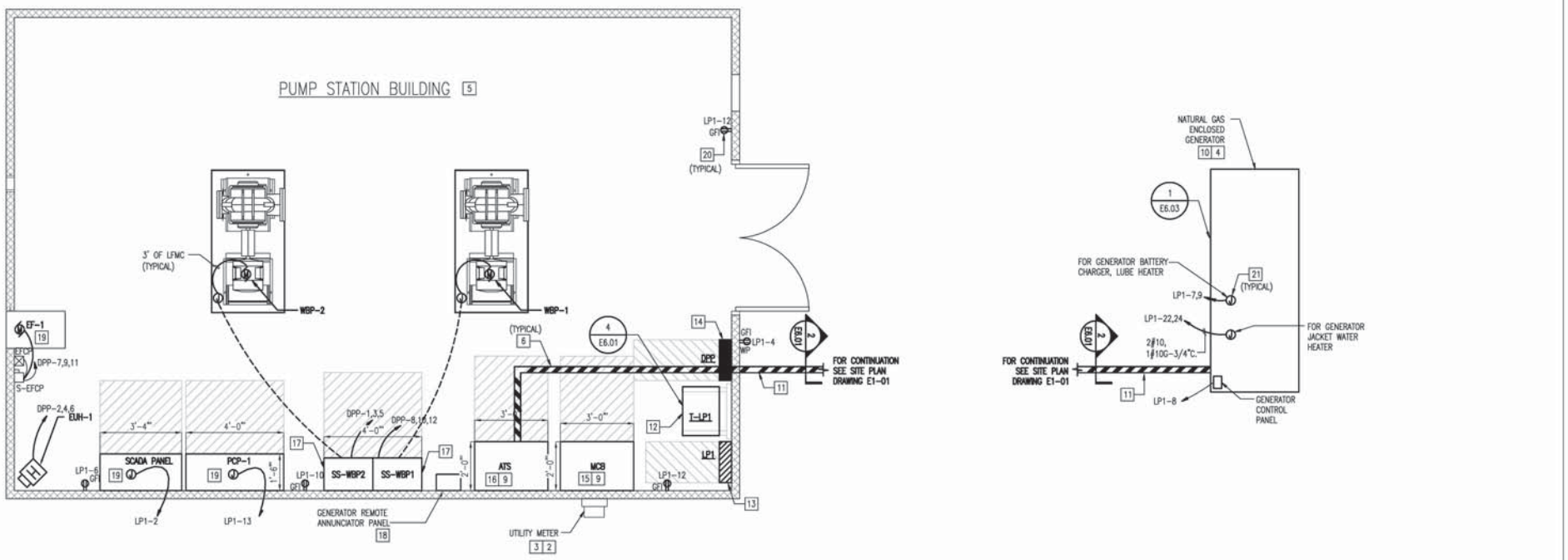
WHITMAN, REQUARDT & ASSOCIATES, LLP
1870 Merchants Walk, Suite 100, Newport News, VA 23606

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

0 1' 2' 4'
SCALE: 1/2" = 1'-0"

REV	DATE	DESCRIPTION

OLD DOMINION UTILITY SERVICES 2023 HARRISON ROAD FORT EUSTIS, VIRGINIA, 23604 FEBRUARY 2013	SCALE 1/2" = 1'-0"	OLD DOMINION UTILITY SERVICES ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION	ELECTRICAL LIGHTING PLAN	DRAWING E2.01	SHEET 25



1 E3.01 ELECTRICAL POWER PLAN

SCALE: 1/2" = 1'-0"

DRAWING NOTES

1. REFER TO DRAWING E0-01 FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
2. REFER TO DRAWING E1-01 FOR ELECTRICAL SITE PLAN.
3. REFER TO DRAWING E2-01 FOR ELECTRICAL LIGHTING PLAN.
4. REFER TO DRAWING E4-01 FOR ELECTRICAL GROUNDING PLAN.
5. REFER TO DRAWING E5-01 FOR ONE LINE AND RISER DIAGRAMS.
6. REFER TO DRAWINGS E6-01 THRU E6-03 FOR ELECTRICAL DETAILS.
7. REFER TO DRAWING E7-01 FOR ELECTRICAL FEEDER AND PANELBOARD SCHEDULES.
8. CONCRETE ENCASED DUCTBANK SHALL TRANSITION TO DIRECT BURIED CONDUIT INSTALLATION WHEN THEY ARE PLACED UNDER BUILDING CONCRETE SLAB AND FOUNDATION.

SPECIFIC NOTES

1. NOT USED.
2. METERBASE PROVIDED BY DVP, AND INSTALL BY CONTRACTOR. COORDINATE WITH DVP FOR TERMINATION OF WIRING.
3. UTILITY SECONDARY SERVICE LATERAL BY DVP. COORDINATE WITH ELECTRIC UTILITY COMPANY FOR CONDUCTOR PHASING.
4. PROVIDE CONCRETE PAD MOUNTED NATURAL GAS GENERATOR, CONCRETE PAD, POWER FEEDER, AND CONTROL/SIGNAL WIRING FROM THIS LOCATION TO THE ATS, AND SCADA PANEL RESPECTIVELY.
5. PROVIDE GROUNDING, BONDING, AND LIGHTNING PROTECTION SYSTEM TO THE PUMP STATION BUILDING.
6. CONDUITS UNDER CONCRETE BUILDING FOUNDATION SHALL BE INSTALLED DIRECT BURIED.
7. NOT USED
8. NOT USED.
9. COORDINATE CONCRETE SLAB CONDUIT PENETRATIONS WITH EQUIPMENT MANUFACTURER SHOP DRAWINGS.
10. PROVIDE CONCRETE PAD. COORDINATE CONCRETE PAD CONDUIT PENETRATIONS WITH EQUIPMENT MANUFACTURER SHOP DRAWINGS.
11. PROVIDE GENERATOR FEEDER UNDERGROUND DUCTBANK AND CABLES. COORDINATE WITH CIVIL DRAWBINGS TO CLEAR EXISTING AND NEW PIPES AND CONDUITS. COORDINATE WITH ATS AND GENERATOR EQUIPMENT MANUFACTURER SHOP DRAWINGS FOR BUILDING CONCRETE SLAB CONDUIT PENETRATIONS, AND CABLE TERMINATIONS AT BOTH ENDS.
12. PROVIDE PLATFORM MOUNTED DRY TYPE TRANSFORMER. MOUNT TRANSFORMER AT 36" AFF.
13. PROVIDE SURFACE MOUNTED 208/120 V, 3 PHASE LIGHTING PANEL.
14. PROVIDE SURFACE MOUNTED 480/277 V, 3 PHASE DISTRIBUTION PANEL.
15. PROVIDE FLOOR MOUNTED SERVICE ENTRANCE RATED SWITCHBOARD. PROVIDE SYSTEM GROUNDING.
16. PROVIDE SURFACE MOUNTED ATS. PROVIDE POWER FEEDER AND CONTROL WIRING.
17. PROVIDE SURFACE MOUNTED SOFT STARTER EQUIPMENT. PROVIDE POWER, CONTROL AND SIGNAL CIRCUITS. REFER TO MECHANICAL AND INSTRUMENTATION DRAWINGS FOR ADDITIONAL REQUIREMENTS.
18. PROVIDE SURFACE MOUNTED REMOTE GENERATOR ANNUNCIATOR PANEL.
19. REFER TO INSTRUMENTATION DRAWINGS FOR ADDITIONAL WIRING REQUIREMENTS.
20. MOUNT RECEPTACLES AT 36" AFF MIN.
21. PROVIDE NEMA 3R JUNCTION BOXES FOR NON-CONDITIONED ROOM/AREAS.

OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

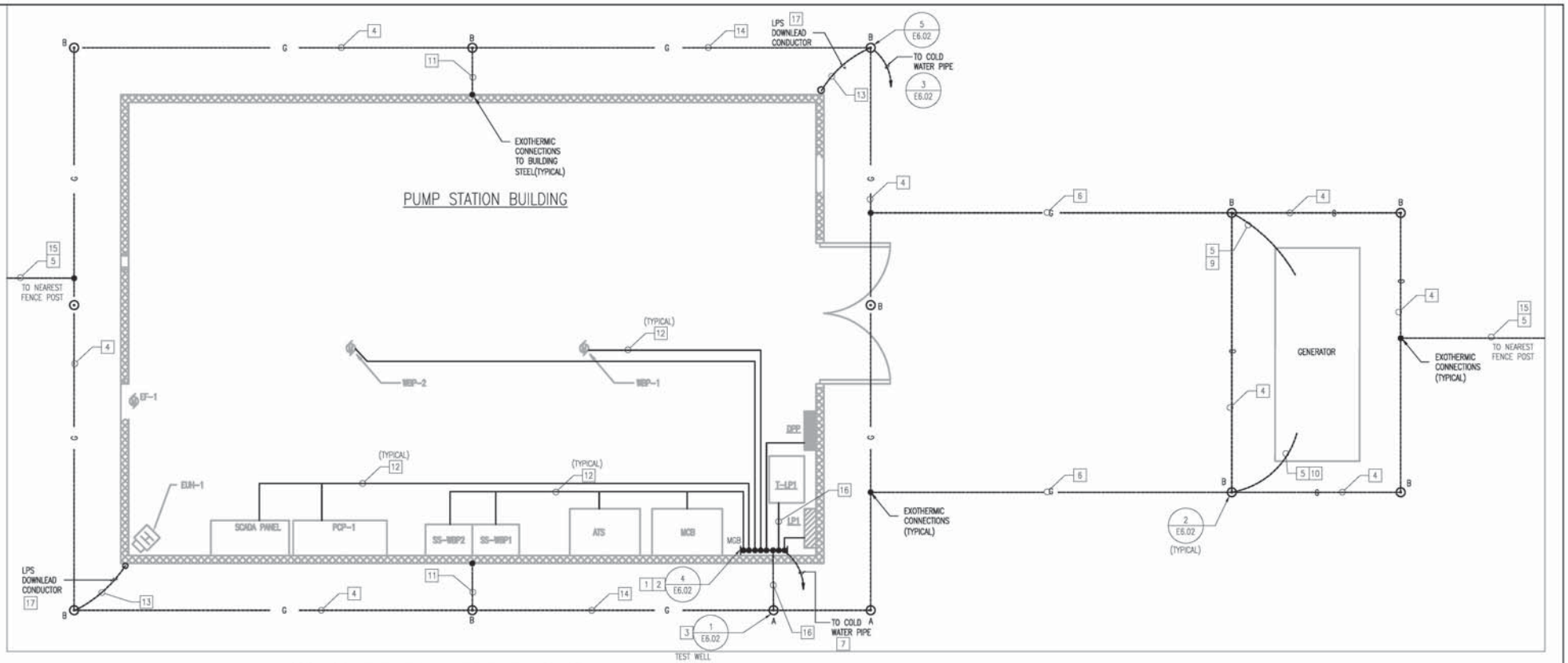
WHITMAN, REQUARDT & ASSOCIATES, LLP
1870 Merchants Walk, Suite 100, Newport News, VA 23606

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

0 1' 2' 4'
SCALE: 1/2" = 1'-0"

REV	DATE	DESCRIPTION

OLD DOMINION UTILITY SERVICES 2023 HARRISON ROAD FORT EUSTIS, VIRGINIA, 23604 FEBRUARY 2013	SCALE 1/2" = 1'-0"	OLD DOMINION UTILITY SERVICES ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION	ELECTRICAL POWER PLANS	DRAWING E3.01	SHEET 26



ELECTRICAL GROUNDING PLAN

1 / E4.01 SCALE: 1/2" = 1'-0"

GENERAL NOTES:

1. REFER TO DRAWING E0-01 FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
2. REFER TO DRAWING E6-03 FOR GROUNDING RISER DIAGRAM AND ADDITIONAL GROUNDING WORK REQUIREMENTS.
3. REFER TO DRAWING E6-02 FOR GROUNDING DETAILS.
4. THE GROUNDING SCHEME SHOWN ON THE RISER DIAGRAM IS IN ADDITION TO GROUND WIRES PROVIDED IN CONDUIT ALONG WITH FEEDER AND BRANCH CIRCUITS.
5. ALL UNDERGROUND CONNECTIONS SHALL BE EXOTHERMIC WELD.
6. COORDINATE LOCATION OF ALL EQUIPMENT PRIOR TO INSTALLATION OF GROUNDING CONDUCTOR AND CONDUITS.
7. ALL MECHANICAL CONNECTIONS TO GROUNDING BUS SHALL BE DONE BY IRREVERSIBLE COMPRESSION TYPE, UL LISTED CONNECTION ON GROUND BUS.
8. EXISTING WORK SHOWN IN LIGHT LINE WEIGHT, NEW WORK SHOW IN DARK LINE WEIGHT.
9. INTERIOR BONDING CONDUCTOR SHALL BE #6 AWG MIN. INSULATED GREEN COPPER.
10. EXTERIOR AND UNDERGROUND BONDING CONDUCTOR SHALL BE #1/0 AWG MIN. BARE COPPER U.O.N.
11. UNDERGROUND BUILDING AND GENERATOR GROUNDING RING CONDUCTOR SHALL BE #4/0 AWG BARE COPPER.
12. BONDING CONDUCTOR BETWEEN GROUNDING RINGS SHALL BE #4/0 AWG BARE COPPER.
13. CONNECTIONS TO CHAIN LINK FENCE METAL POST SHALL BE EXOTHERMIC WELD TYPE.
14. UNDERGROUND GROUNDING RING SHALL BE INSTALLED AT 30" MIN. BELOW GRADE, AND 24" MIN. FROM BUILDING FOOTINGS AND FOUNDATION.
15. DRIVEN GROUND RODS SHALL BE INSTALLED AT 24" MIN. FROM BUILDING FOOTINGS AND FOUNDATION. TOP OF THE ROD SHALL BE AT 12" BELOW GRADE.
16. CONNECTIONS TO EQUIPMENT, ENCLOSURES OR PANELS SHALL BE MECHANICAL TYPE AND TERMINATE AT RATED GROUND TERMINAL.

DRAWING NOTES:

1. MAIN BUILDING GROUND BAR BONDING: BOND EACH INTERIOR ELECTRICAL AND ELECTRONIC EQUIPMENT METAL ENCLOSURE USING #2 AWG INSULATED GREEN COPPER CONDUCTOR IN 3/4 " CONDUIT.
2. MAIN BUILDING GROUND BAR CONNECTIONS: USE MECHANICAL BOLTED TYPE WITH LONG BARREL DOUBLE HOLE COMPRESSION IRREVERSIBLE LUG WITH STAR WASHERS.
3. TEST WELL CONNECTIONS: GROUNDING CONDUCTOR FROM THE MAIN BUILDING GROUND BAR SHALL CONNECT TO TEST WELL GROUNDING ELECTRODE USING MECHANICAL CONNECTION.
4. UNDERGROUND GROUNDING RING CONDUCTOR.
5. #4/0 AWG BARE COPPER CONDUCTOR.
6. BONDING CONDUCTOR BETWEEN BUILDING AND GENERATOR GROUNDING RING.
7. BONDING CONDUCTOR.
8. 3/4 " X 10' COPPER-CLAD STEEL DRIVEN GROUND ROD.
9. BONDING TO GENERATOR METAL FRAME.
10. BONDING TO GENERATOR GROUND BUS.
11. BONDING TO BUILDING METAL STRUCTURE.
12. INTERIOR BONDING CONDUCTOR.
13. LIGHTNING PROTECTION SYSTEM DOWN CONDUCTOR SHALL TERMINATE AT DEDICATED GROUNDING ELECTRODE.
14. BOND BUILDING GROUNDING RING TO EXISTING UNDERGROUND MAIN WATER LINE (TYPICAL).
15. REFER TO DRAWING E4-03 FOR FENCE GROUNDING. FENCE GATE POSTS BONDING CONDUCTOR SHALL EXTEND 36" OUTSIDE THE AREA COVERED BY THE FENCE GATE OPENING.
16. GROUNDING ELECTRODE CONDUCTOR.
17. LIGHTNING PROTECTION SYSTEM DOWN CONDUCTOR ROUTED IN 1" PVC SCHE. 80 CONDUIT DOWN TO 12" MIN BELOW GRADE.

OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

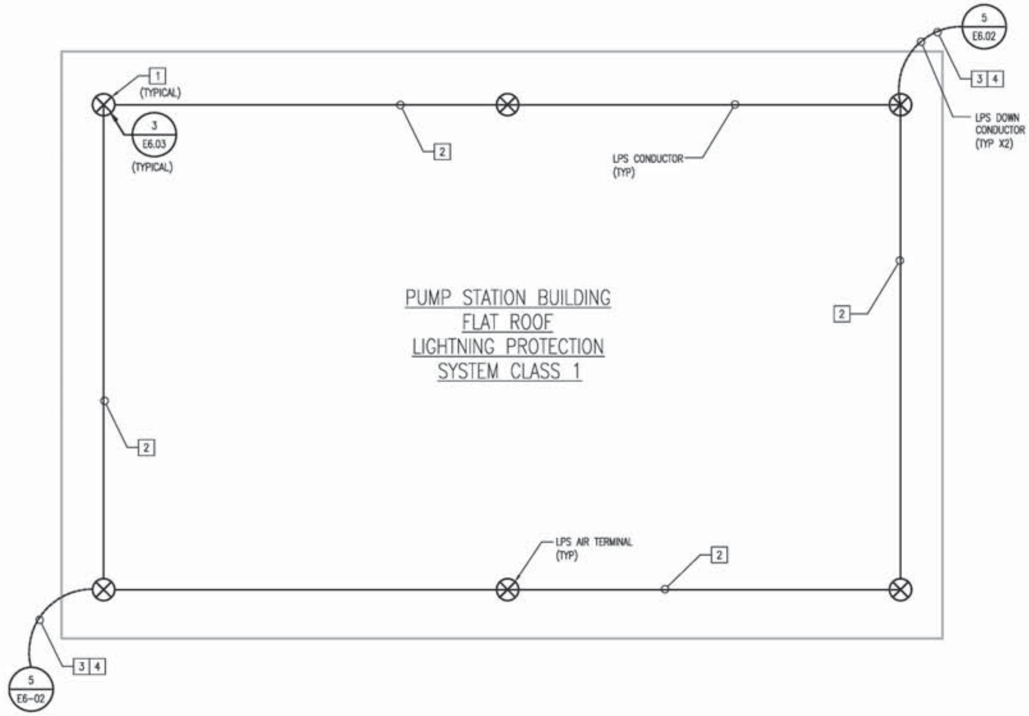
WR&A
WHITMAN, REQUARDT & ASSOCIATES, LLP
1870 Merchants Walk, Suite 100, Newport News, VA 23606

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

0 1' 2' 4'
SCALE: 1/2" = 1'-0"

REV	DATE	DESCRIPTION

OLD DOMINION UTILITY SERVICES 2023 HARRISON ROAD FORT EUSTIS, VIRGINIA, 23604 FEBRUARY 2013	SCALE 1/2" = 1'-0"	OLD DOMINION UTILITY SERVICES ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION	ELECTRICAL GROUNDING PLAN	DRAWING E4.01	SHEET 27



1 E4.02 ELECTRICAL LIGHTNING PROTECTION SYSTEM ROOF PLAN

SCALE: 1/2" = 1'-0"

DRAWING NOTES

1. REFER TO DRAWING E0-01 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
2. REFER TO DRAWING E-602 AND E6-03 FOR ELECTRICAL DETAILS.
3. REFER TO DRAWING E6-03 FOR ELECTRICAL GROUNDING RISER DIAGRAM.

SPECIFIC NOTES

[1] PROVIDE FLAT ROOF MOUNTING TYPE LIGHTNING PROTECTION SYSTEM CLASS 1 AIR TERMINAL EQUIPMENT.

[2] PROVIDE LIGHTNING PROTECTION SYSTEM CLASS 1 COPPER CONDUCTOR.

[3] PROVIDE LIGHTNING PROTECTION SYSTEM CLASS 1 COPPER DOWN CONDUCTOR. ROUTE IT WITHIN 1" PVC CONDUIT ALONG EXTERNAL BUILDING WALL. SUPPORT PVC CONDUIT AT 3 FT INTERVALS.

[4] TERMINATE LPS DOWN CONDUCTOR AT DEDICATED GROUNDING ELECTRODE.

LIGHTNING PROTECTION INSTALLATION NOTES

1. ENSURE COMPATIBILITY OF MATERIALS AT ROOF, INCLUDING BOOT, SPECIAL ADHESIVE, SEALS, MOUNTING PAD, ETC.
2. FIELD VERIFY REMOVAL OF FIREPROOFING FROM THE AREA WHERE STRUCTURAL STEEL BONDING IS TO OCCUR. CLEAN AND BRIGHTEN STEEL TO ENSURE A GOOD ELECTRICALLY CONTINUOUS CONNECTION. REPLACEMENT OF FIREPROOFING IS REQUIRE TO ENSURE STRUCTURAL INTEGRITY OF THE STRUCTURAL STEEL FRAMING.
3. METAL BODIES OF INDUCTANCE LOCATED ABOUT THE ROOF SUCH AS METAL FLASHINGS, GRAVEL STOPS, ROOF DRAINS, SOIL PIPE VENTS, INSULATION VENTS, LOUVERS AND DOOR FRAMES SITUATED WITHIN 6'-0" OF A LIGHTNING CONDUCTOR OR BONDED METAL BODY SHALL BE INTERCONNECTED TO THE LIGHTNING CONDUCTOR SYSTEM.
4. NO BEND OF A CONDUCTOR SHALL FORM A FINAL INCLUDED ANGLE OF LESS THAN 90 DEGREES OR A RADIUS OF BEND OF LESS THAN 8".
5. CONDUCTORS SHALL INTERCONNECT ALL AIR TERMINALS AND SHALL FORM A TWO-WAY PATH FROM EACH AIR TERMINAL HORIZONTALLY OR DOWNWARD TO CONNECTIONS WITH GROUND TERMINALS.
6. ALL LIGHTNING PROTECTION CONDUCTORS SHALL BE FASTENED AT NOT MORE THAN 3'-0" MAXIMUM SPACING.
7. CONNECTIONS TO GROUND ROD OR GROUND LOOP CONDUCTOR SHALL BE MADE AT A POINT NOT LESS THAN 1'-0" BELOW GRADE AND 2'-0" AWAY FROM FOUNDATION WALL.
8. ACTUAL JOB SITE CONDITIONS MAY NECESSITATE SLIGHT ALTERATIONS IN AIR TERMINAL AND GROUND ROD LOCATIONS.
9. AIR TERMINALS SHALL BE PLACED AT TOP OF RIDGE WITH EQUAL SPACING AND WITHIN 2'-0" OF OUTSIDE EDGE.
10. BOND ALL METALLIC PIPES INCLUDING WATER, FIRE, GAS, SEWER, STORM, ETC., WHICH ENTER THE STRUCTURE TO THE NEAREST DOWNLEAD, GROUND ROD OR GROUND LOOP.
11. BARE LIGHTNING PROTECTION MATERIALS SHALL NOT BE INSTALLED ON ALUMINUM SURFACES.
12. FOR SAKE OF CLARITY, EACH INDIVIDUAL ITEM OF LIGHTNING PROTECTION MATERIALS HAS NOT BEEN LABELED ON THE ROOF PLAN. SEE INSTALLATION DETAILS.
13. THE LIGHTNING PROTECTION SYSTEM SHALL BE INSTALLED IN A NEAT AND INCONSPICUOUS MANNER SO THAT ALL COMPONENTS WILL BLEND IN WITH THE APPEARANCE OF THE BUILDING.
14. SEAL ENDS OF CONDUIT MOISTURE TIGHT WITH DUCT SEAL OR LEAD WEDGE.
15. ALL CONDUIT, CONDUIT FASTENERS AND MISCELLANEOUS ACCESSORIES SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
16. ADHESIVE TYPE FITTINGS ON ROOF SHALL BE SET IN PLACE WITH AN APPLICATION OF COMPATIBLE ROOF CEMENT.
17. COAT UNDERGROUND CONNECTIONS WITH COAL TAR EPOXY.
18. THE LIGHTNING PROTECTION SYSTEMS SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH THE PROVISIONS OF NFPA 780.

OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

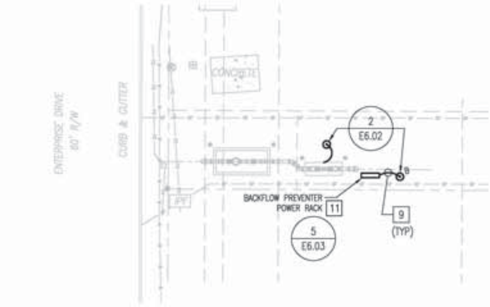
WHITMAN, REQUARDT & ASSOCIATES, LLP
11870 Merchants Walk, Suite 100, Newport News, VA 23606

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

0 1' 2' 4'
SCALE: 1/2" = 1'-0"

REV	DATE	DESCRIPTION

OLD DOMINION UTILITY SERVICES, 2023 HARRISON ROAD, FORT EUSTIS, VIRGINIA, 23604, FEBRUARY 2013	SCALE 1/2" = 1'-0"	OLD DOMINION UTILITY SERVICES ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION	ELECTRICAL LIGHTNING PROTECTION SYSTEM ROOF PLAN	DRAWING E4.02	SHEET 28



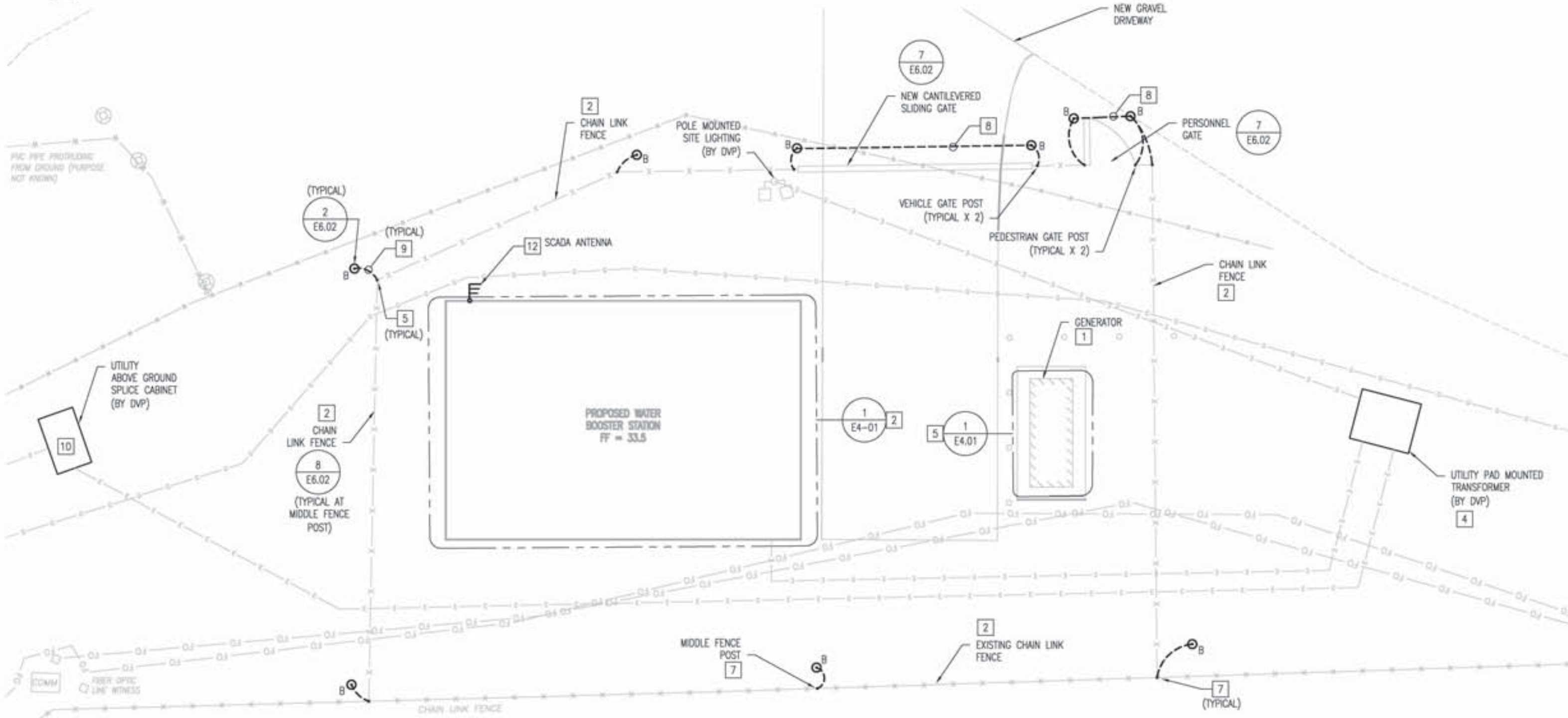
2 (E4.03) ELECTRICAL SITE GROUNDING PLAN
SCALE: 1" = 5'-0"

GENERAL NOTES:

1. ALL UNDERGROUND CONNECTIONS SHALL BE EXOTHERMIC WELD.
2. REFER TO SHEET E0-01 FOR SYMBOLS, ABBREVIATIONS, AND GENERAL NOTES.
3. REFER TO DRAWING E4-01 FOR GROUNDING AND E4-02 FOR LIGHTNING PROTECTION SYSTEM PLANS.
4. REFER TO DRAWING E6-03 FOR ELECTRICAL GROUNDING RISER DIAGRAM.
5. REFER TO DRAWING E6-01 THRU E6-03 FOR ELECTRICAL GROUNDING DETAILS.
6. REFER TO DRAWING E1-01 FOR ELECTRICAL SITE PLAN.
7. COORDINATE WITH DOMINION VIRGINIA POWER ELECTRIC UTILITY COMPANY "DVP" FOR WORK RELATED AND AROUND ELECTRIC UTILITY TRANSFORMER AND MANHOLE.
8. COORDINATE LOCATION OF ALL EQUIPMENT PRIOR TO INSTALLATION OF GROUNDING CONDUCTOR AND CONDUITS.
9. ALL MECHANICAL CONNECTIONS TO GROUNDING BUS SHALL BE DONE BY IRREVERSIBLE COMPRESSION TYPE, UL LISTED CONNECTION ON GROUND BUS.
10. EXTERIOR AND UNDERGROUND BONDING CONDUCTOR SHALL BE #1/0 AWG MIN. BARE COPPER UON.
11. UNDERGROUND BUILDING AND GENERATOR GROUNDING RING CONDUCTOR SHALL BE #4/0 AWG BARE COPPER.
12. BONDING CONDUCTOR BETWEEN GROUNDING RINGS SHALL BE #4/0 AWG BARE COPPER.
13. CONNECTIONS TO CHAIN LINK FENCE METAL POST SHALL BE EXOTHERMIC WELD TYPE.
14. UNDERGROUND GROUNDING RING SHALL BE INSTALLED AT 30" MIN. BELOW GRADE, AND 24" MIN. FROM BUILDING FOOTINGS AND FOUNDATION.
15. GROUND RODS SHALL BE INSTALLED AT 24" MIN. FROM BUILDING FOOTINGS AND FOUNDATION. TOP OF THE ROD SHALL BE AT 12" BELOW GRADE.
16. CONNECTIONS TO EQUIPMENT, ENCLOSURES OR PANELS SHALL BE MECHANICAL TYPE AND TERMINATE AT RATED GROUND TERMINAL.

SPECIFIC NOTES

1. PROVIDE CONCRETE PAD MOUNTED NATURAL GAS GENERATOR GROUNDING AND BONDING.
2. PROVIDE GROUNDING, BONDING, AND LIGHTNING PROTECTION SYSTEM TO THE PUMP STATION BUILDING AND CHAIN LINK FENCE.
3. NOT USED
4. TRANSFORMER GROUNDING AND BONDING BY DVP.
5. COORDINATE CONCRETE PAD GROUNDING CABLE PENETRATIONS WITH EQUIPMENT MANUFACTURER SHOP DRAWINGS.
6. NOT USED
7. PROVIDE GROUNDING AND BONDING AT EACH CORNER AND MIDDLE FENCE POST.
8. PROVIDE GROUNDING AND BONDING JUMPER ACROSS FENCE GATES.
9. BONDING CONDUCTOR.
10. ABOVE GROUND SPLICE CABINET GROUNDING AND BONDING BY DVP.
11. PROVIDE GROUNDING AND BONDING. TERMINATE BONDING AT EQUIPMENT RATED GROUND BAR OR BUSBAR. BOND METAL STRUCTURE AND EACH METAL EQUIPMENT ENCLOSURE TO THE GROUNDING ELECTRODE.
12. PROVIDE GROUNDING AND BONDING FOR THE SCADA RF ANTENNA AND STRUCTURAL SUPPORT. BOND TO THE BUILDING GROUNDING RING.



1 (E4.03) ELECTRICAL SITE GROUNDING PLAN
SCALE: 1" = 5'-0"

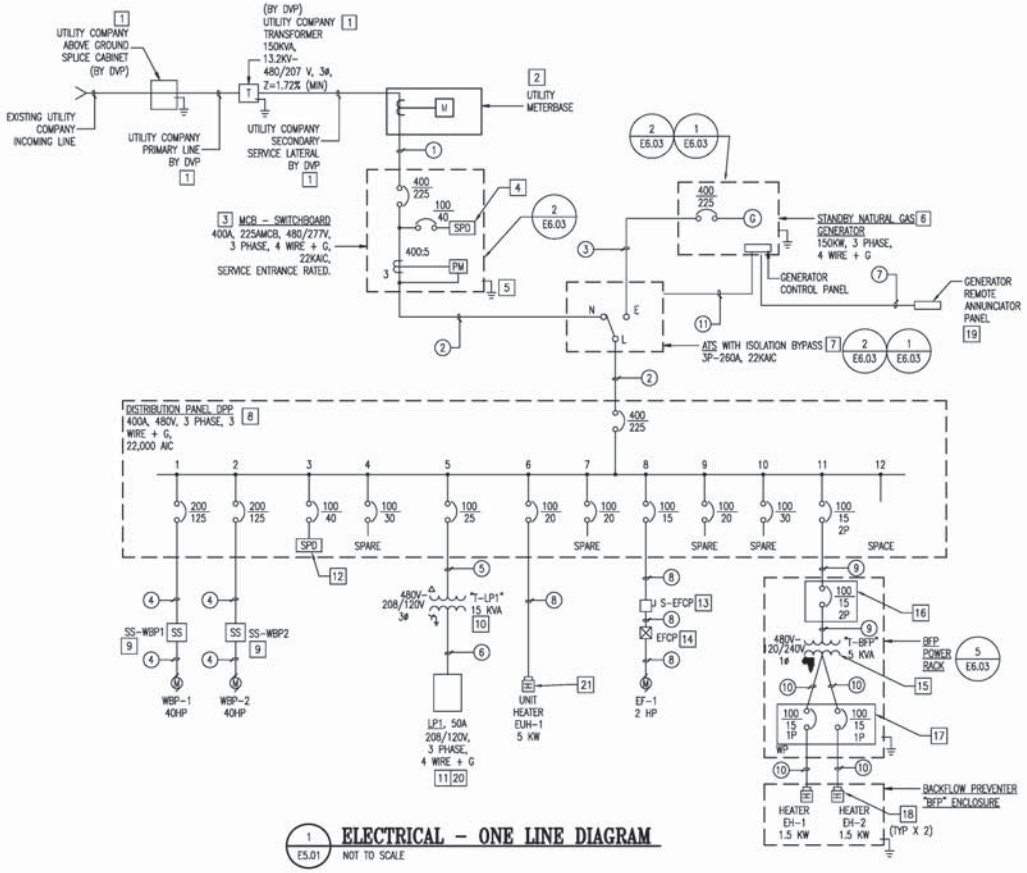
SCALE: 1" = 5' (0, 5', 10')

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

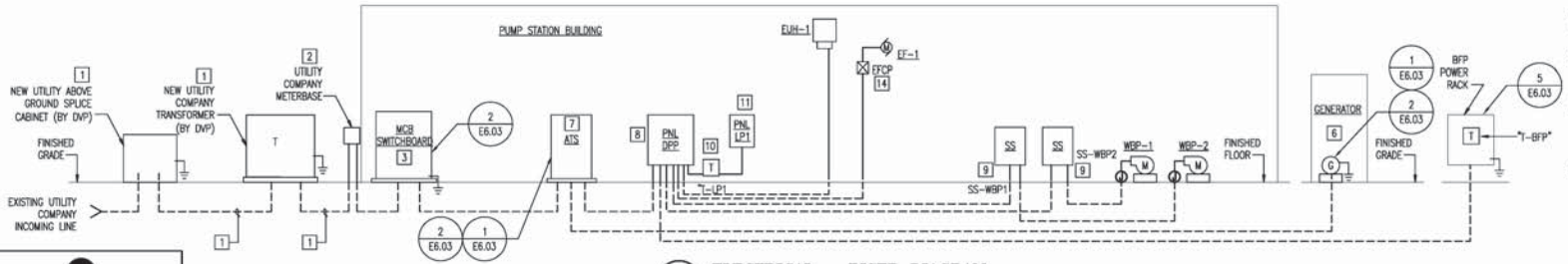
OLD DOMINION UTILITY SERVICES INCORPORATED, 2023 HARRISON ROAD, FORT EUSTIS, VIRGINIA 23604	WR&A WHITMAN, REQUARDT & ASSOCIATES, LLP, 11870 Merchants Walk, Suite 100, Newport News, VA 23606	OLD DOMINION UTILITY SERVICES, 2023 HARRISON ROAD, FORT EUSTIS, VIRGINIA, 23604, FEBRUARY 2013	SCALE: AS NOTED	OLD DOMINION UTILITY SERVICES ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION	ELECTRICAL SITE GROUNDING PLAN

REV	DATE	DESCRIPTION

DRAWING	SHEET
E4.03	29



1 E5.01 **ELECTRICAL – ONE LINE DIAGRAM**
NOT TO SCALE



2 E5.01 **ELECTRICAL – RISER DIAGRAM**
NOT TO SCALE

DRAWING NOTES

1. REFER TO DRAWING E0-01 FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
2. REFER TO DRAWING E1-01 FOR ELECTRICAL SITE PLAN.
3. REFER TO DRAWING E2-01 FOR ELECTRICAL LIGHTING PLAN.
4. REFER TO DRAWING E3-01 FOR ELECTRICAL POWER PLAN.
5. REFER TO DRAWING E4-01 FOR ELECTRICAL GROUNDING PLAN.
6. REFER TO DRAWINGS E6-01 THRU E6-03 FOR ELECTRICAL DETAILS.
7. REFER TO DRAWING E7-01 FOR ELECTRICAL FEEDER AND PANEL SCHEDULES.
8. ALL CIRCUIT BREAKERS INDICATED ON THIS DRAWING ARE 3P UON.

SPECIFIC NOTES

[1] ABOVE GROUND SPLICE CABINET, UNDERGROUND PRIMARY CABLES, TRANSFORMER AND CONCRETE PAD, AND UNDERGROUND SECONDARY CABLES BY DVP.

[2] METERBASE BY DVP. CONTRACTOR SHALL INSTALL THE SURFACE MOUNTED METERBASE PER DVP STANDARDS. COORDINATE WITH DVP.

[3] PROVIDE A FLOOR MOUNTED BOTTOM ENTRY 400A ML, 225AMCB, 480/277V, 3ø, 4W, 22KAIC SWITCHBOARD SERVICE ENTRANCE RATED, WITH MAIN CIRCUIT BREAKER, CURRENT TRANSFORMER CABINET AND INTEGRATED SURGE PROTECTION DEVICE, NEMA 4X SQUARE-D CATALOG NUMBER CTC364CU OR APPROVED EQUAL. PROVIDE 4" HEIGHT HOUSEKEEPING CONCRETE PAD.

[4] 160KA, 480V/277V, 3ø, 4W SURGE PROTECTION DEVICE WITH SURGE COUNTER, TYPE 2 SQUARE-D MODEL IMA OR APPROVED EQUAL.

[5] PROVIDE SYSTEM GROUNDING AT THIS EQUIPMENT. TERMINATE GROUNDING ELECTRODE CONDUCTOR AT RATED GROUND BUS, AND AT GROUNDING TEST WELL WITH MECHANICAL BOLTED CONNECTION.

[6] PROVIDE A CONCRETE PAD MOUNTED 150KW/188KVA, 480/277 V, 3ø, 4W, 60HZ NATURAL GAS GENERATOR, OUTDOOR ENCLOSED, STANDBY, NEMA 3R, WEATHER PROTECTED AND 70DB SOUND ATTENUATED ENCLOSURE, CUMMINS CATALOG NUMBER GGLB WITH CONTROL PANEL MODEL POWERCOMMAND 1301 OR APPROVED EQUAL.

[7] PROVIDE A FLOOR MOUNTED 260A, 480/277 V, 3ø, 4W, 30KAIC AUTOMATIC TRANSFER SWITCH WITH BYPASS ISOLATION, NEMA 4X CUMMINS MODEL BTPC OR APPROVED EQUAL. PROVIDE 4" HEIGHT HOUSEKEEPING CONCRETE PAD.

[8] PROVIDE A SURFACE MOUNTED 400AML, 225AMCB, 480/277 V, 3ø, 4W, 22KAIC, NEMA 4X CIRCUIT BREAKER PANELBOARD SQUARE-D MODEL QMB OR APPROVED EQUAL.

[9] PROVIDE SOFT STARTER MOTOR CONTROL PER DIVISION 15.

[10] PROVIDE A PLATFORM MOUNTED 15KVA, 480-208Y/120V, 3ø, VENTILATED DRY TYPE TRANSFORMER SQUARE-D MODEL EE15T3HF OR APPROVED EQUAL.

[11] PROVIDE A SURFACE MOUNTED 100AML, 50AMCB, 208/120 V, 3ø, 4W, 10KAIC, NEMA 4X CIRCUIT BREAKER PANEL SQUARE-D MODEL NQ OR APPROVED EQUAL.

[12] PROVIDE 120KA, 208Y/120V, 3ø, 4W, TYPE 2 SURGE PROTECTION DEVICE MOUNTED AND INTEGRAL WITHIN THE CIRCUIT BREAKER PANEL SQUARE-D MODEL IMA OR APPROVED EQUAL.

[13] PROVIDE SURFACE MOUNTED 30A, 480/277 V, 3ø, NEMA 4X, HEAVY DUTY DISCONNECT SWITCH SQUARE-D MODEL HU361SS OR APPROVED EQUAL.

[14] PROVIDE SURFACE MOUNTED EXHAUST FAN VENTILATION CONTROL PANEL PRE DIVIOSN 15 IN NEMA 4X ENCLOSURE. REFER TO INSTRUMENTATION DRAWINGS FOR WIRING REQUIREMENTS.

[15] PROVIDE A SURFACE MOUNTED 5KVA, 480V-120/240V, SINGLE PHASE, 2-5% FCBN, EPOXI-RESIN ENCAPSULATED, NEMA 4X SEALED TRANSFORMER SQUARE-D MODEL 5S40FSS OR APPROVED EQUAL.

[16] PROVIDE A SURFACE MOUNTED 15A, 480V, 2 POLE, 14KAIC ENCLOSED CIRCUIT BREAKER IN NEMA 4X ENCLOSURE.

[17] PROVIDE A SURFACE MOUNTED TWO (2) 15A, 250V, 1 POLE, 10KAIC ENCLOSED CIRCUIT BREAKERS IN NEMA 4X ENCLOSURE.

[18] PROVIDE WIRING AND CONDUIT, AND TERMINATION TO THE (2) ELECTRIC HEATERS WITHIN THE BACKFLOW PREVENTER ENCLOSURE.

[19] PROVIDE SURFACE MOUNTED GENERATOR REMOTE ANNUNCIATOR PANEL CUMMINS MODEL POWERCOMMAND 1301 IN NEMA 4X ENCLOSURE OR APPOVED EQUAL.

[20] PROVIDE 100KA, 208/120V, 3ø, 4W, TYPE 2 SURGE PROTECTION DEVICE MOUNTED INTEGRAL WITHIN PANEL BOARD SQUARE-D MODEL IMA OR APPROVED EQUAL.

[21] PROVIDE WALL MOUNTED 5KW, 480V, 3ø, 3W, ELECTRIC UNIT HEATER PER DIVISION 15

OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

WR&A
WHITMAN, REQUARDT & ASSOCIATES, LLP
1870 Merchants Walk, Suite 100, Newport News, VA 23606

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

REV	DATE	DESCRIPTION

OLD DOMINION UTILITY SERVICES
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA, 23604
FEBRUARY 2013

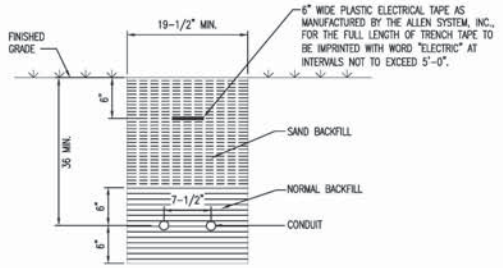
SCALE: AS NOTED

OLD DOMINION UTILITY SERVICES
ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION

ELECTRICAL ONE LINE AND RISER DIAGRAM

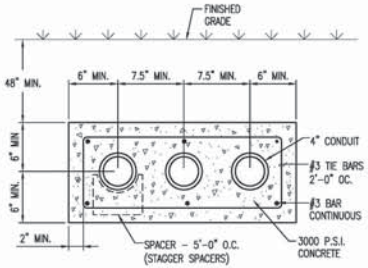
DRAWING: E5.01

SHEET: 30



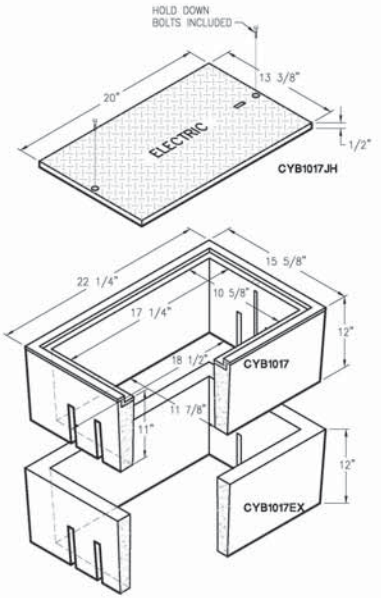
1 E6.01 DIRECT BURIED 2- CONDUIT DETAIL

SCALE: NOT TO SCALE



2 E6.01 3 WAY CONCRETE ENCASED UNDERGROUND DUCTBANK

NOT TO SCALE

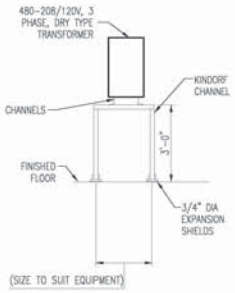


*STANDARD B1017 KIT (SHOWN ABOVE) AS MANUFACTURED BY JENSEN PRECAST O.A.E. DESIGN LOAD: H-20 FULL TRAFFIC

CATALOG NUMBER	PRODUCT	DESCRIPTION	APPROX. WT. (LBS.)
* CYB1017	BOX	REINFORCED CONCRETE	137
* CYB1017JH	LID	STEEL CHECKER PLATE W/HOLD DOWN BOLTS	40
* CYB1017EX	EXTENSION	12" HIGH REINFORCED CONCRETE	120

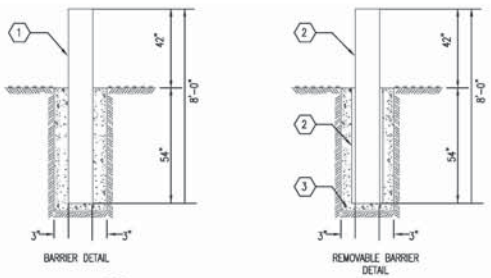
3 E6.01 UNDERGROUND PULL BOX DETAIL

NOT TO SCALE



4 E6.01 PLATFORM MOUNTED TRANSFORMER INSTALLATION DETAIL

NOT TO SCALE



5 E6.01 BARRIERS DETAIL

NOT TO SCALE

DETAIL NOTES

1. USE BARRIER TO PROTECT EQUIPMENT FROM POSSIBLE DAMAGE FROM VEHICLES.
2. WHEN NECESSARY, HEIGHT OF BARRIER ABOVE GROUND MAY BE INCREASED TO PREVENT LARGE VEHICLES FROM STRIKING PAD-MOUNTED EQUIPMENT.
3. REFER TO DETAILS ON DRAWING CIVIL FOR CONCRETE TRANSFORMER & GENERATOR PAD PLAN VIEWS.

DETAIL SPECIFIC NOTES

(1) USE 6" RIGID GALVANIZED STEEL CONDUIT, CUT TO 8' AND FILL WITH CONCRETE. ENCASED IN 3" OF CONCRETE, AS SHOWN.

(2) FOR REMOVABLE VEHICLE BARRIERS, USE 6" PVC SCHEDULE 40, CUT TO 54" AND ENCASED IN CONCRETE. INSERT 8' OF 5" GALVANIZED STEEL CONDUIT, WITH CAP, INTO PVC CONDUIT.

(3) USE 6" OF COMPACTED STONE OR GRAVEL FOR SUMP.

OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

WR&A
WHITMAN, REQUARDT & ASSOCIATES, LLP
1870 Merchants Walk, Suite 100, Newport News, VA 23606

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

REV	DATE	DESCRIPTION

OLD DOMINION UTILITY SERVICES
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA, 23604
FEBRUARY 2013

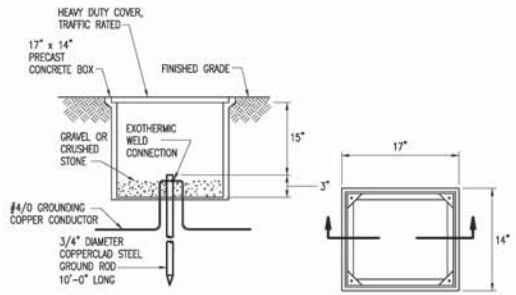
SCALE: AS NOTED

OLD DOMINION UTILITY SERVICES
ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION

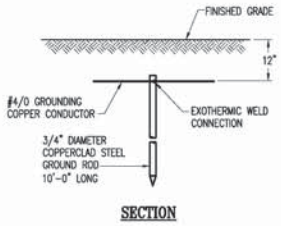
ELECTRICAL DETAILS

DRAWING: E6.01

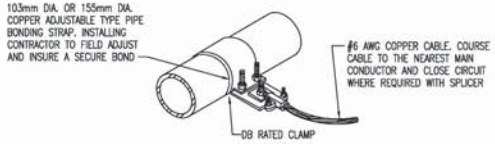
SHEET: 31



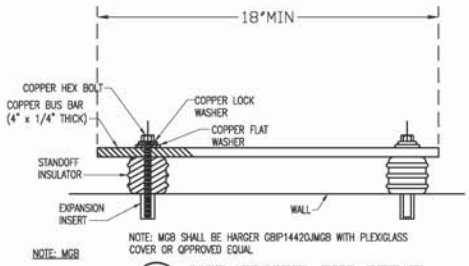
1 E6.02 **GROUND ROD TYPE "A" DETAIL**
NOT TO SCALE



2 E6.02 **GROUND ROD TYPE "B" DETAIL**
NOT TO SCALE

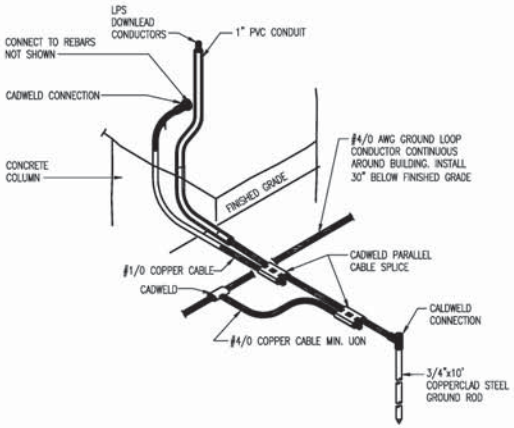


3 E6.02 **TYPICAL PIPE GROUNDING DETAIL**
NOT TO SCALE

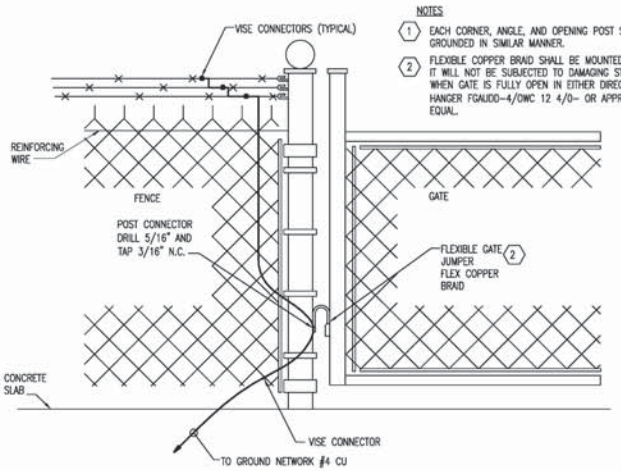


NOTE: MGB SHALL BE HARGER GBIP1442CJMGB WITH PLEXIGLASS COVER OR APPROVED EQUAL

4 E6.02 **MGB GROUND BUS DETAIL**
NOT TO SCALE

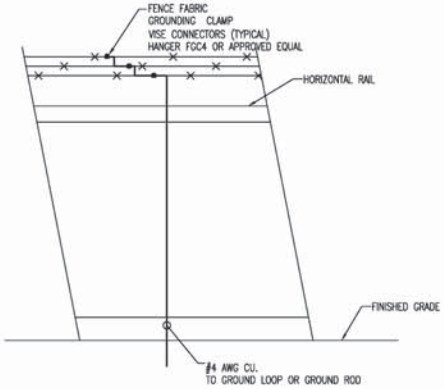


5 E6.02 **LPS DOWNLEAD TO GROUNDING CONNECTION**
NOT TO SCALE



NOTES
1. EACH CORNER, ANGLE, AND OPENING POST SHALL BE GROUNDED IN SIMILAR MANNER.
2. FLEXIBLE COPPER BRAID SHALL BE MOUNTED SO THAT IT WILL NOT BE SUBJECTED TO DAMAGING STRAIN WHEN GATE IS FULLY OPEN IN EITHER DIRECTION. HANGER FGAUDD-4/0WC 12 4/0- OR APPROVED EQUAL.

7 E6.02 **FENCE GATE GROUNDING DETIL** 1
NOT TO SCALE



8 E6.02 **FENCE GROUNDING DETAIL**
NOT TO SCALE

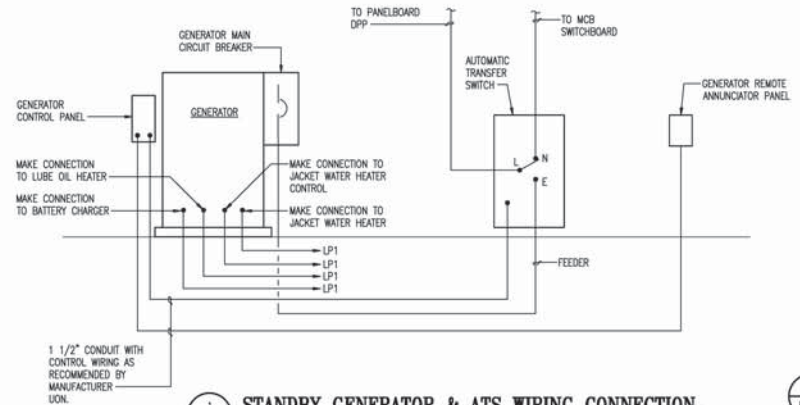
OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

WHITMAN, REQUARDT & ASSOCIATES, LLP
11870 Merchants Walk, Suite 100, Newport News, VA 23606

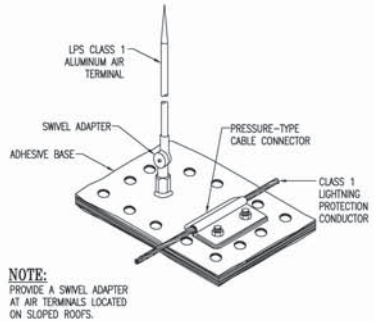
90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

REV	DATE	DESCRIPTION

OLD DOMINION UTILITY SERVICES 2023 HARRISON ROAD FORT EUSTIS, VIRGINIA, 23604 FEBRUARY 2013	SCALE AS NOTED	OLD DOMINION UTILITY SERVICES ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION	ELECTRICAL DETAILS	DRAWING E6.02	SHEET 32



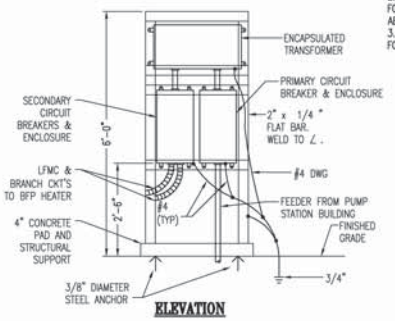
1 / E6.03 **STANDBY GENERATOR & ATS WIRING CONNECTION**
NOT TO SCALE



NOTE:
PROVIDE A SWIVEL ADAPTER AT AIR TERMINALS LOCATED ON SLOPED ROOFS.

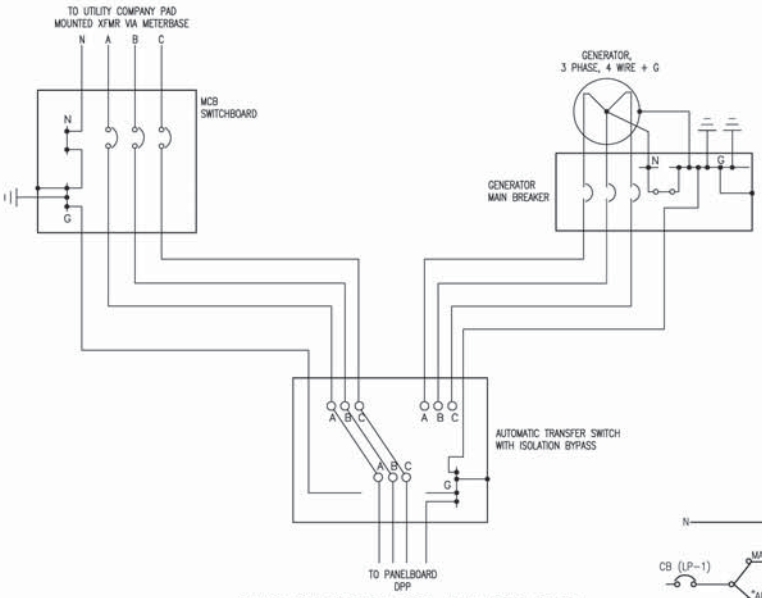
3 / E6.03 **ADHESIVE AIR TERMINAL BASE ON SLOPED ROOF**
NOT TO SCALE

DRAWING NOTES:
1. REFER TO DRAWING E7-01 FOR FEEDER AND PANEL SCHEDULES.
2. REFER TO DRAWING E0-01 FOR SYMBOLS AND ABBREVIATIONS.
3. REFER TO DRAWING E5-01 FOR SINGLE LINE DIAGRAMS.

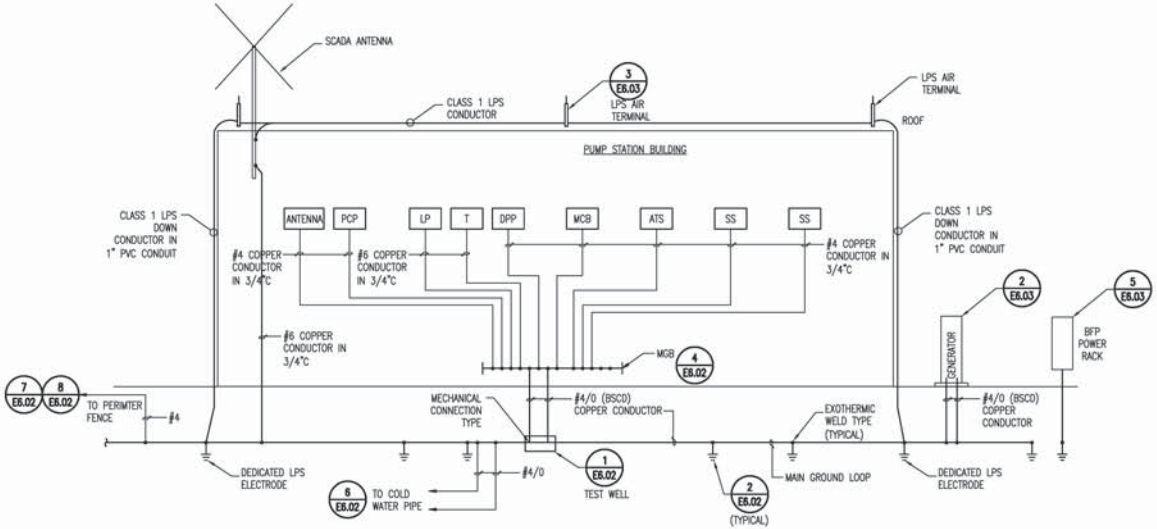


ELEVATION

5 / E6.03 **BACKFLOW PREVENTER POWER RACK DETAIL**
NOT TO SCALE

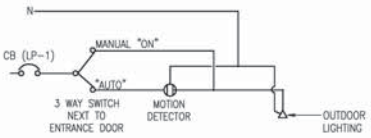


2 / E6.03 **STANDBY GENERATOR, ATS AND MAIN CIRCUIT BREAKER CONNECTION DETAIL**
NOT TO SCALE



NOTE: PROVIDE MGB, GROUNDING AND BONDING CONDUCTORS, CONNECTIONS, SPD, AND LPS SYSTEMS.

4 / E6.03 **GROUNDING RISER DETAIL**
NOT TO SCALE



6 / E6.03 **EXTERIOR DOOR LIGHT ONE LINE DIAGRAM**
NOT TO SCALE

OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

WR&A
WHITMAN, REQUARDT & ASSOCIATES, LLP
1870 Merchants Walk, Suite 100, Newport News, VA 23606

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

REV	DATE	DESCRIPTION

OLD DOMINION UTILITY SERVICES 2023 HARRISON ROAD FORT EUSTIS, VIRGINIA, 23604 FEBRUARY 2013	SCALE AS NOTED	OLD DOMINION UTILITY SERVICES ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION	ELECTRICAL DETAILS	DRAWING E6.03	SHEET 33

FEEDER AND CONDUIT SCHEDULE

FEEDER NO.	CONDUIT	CONDUCTORS	REMARKS
①	3"	3#250 KCMIL, 1#4G.	
②	2 1/2"	3#250 KCMIL, 1#4G.	
③	3"	3#250 KCMIL, 1#4G.	UNDERGROUND
④	1 1/2"	3#1/0, 1#6G.	
⑤	3/4"	3#10, 1#10G.	
⑥	3/4"	3#6, 1#10G.	
⑦	1"	#14, SHIELDED TWISTED PAIR	[1]
⑧	3/4"	3#12, 1#12G.	
⑨	2 1/2"	2# 1/0, 1#1G.	UNDERGROUND
⑩	3/4"	2#10, 1#12G.	LFMC
⑪	1"	12# 14, 1#14 G	[1]

DISTRIBUTION PANELBOARD DPP

SPD: 160KA — 400 AMP BUS — 225 AMP MCB
22,000 AIC — 480/277 VOLTS — 3 PHASE, 4 WIRE + GROUND
NEMA 12 ENCLOSURE — SURFACE MOUNTED — PANEL LOCATION: PUMP ROOM

LOAD SERVED	CIRCUIT BREAKER FRAME	CIRCUIT BREAKER TRIP	CIRCUIT BREAKER P	CKT. NO.	CKT. NO.	CIRCUIT BREAKER P	CIRCUIT BREAKER TRIP	CIRCUIT BREAKER FRAME	LOAD SERVED
WBP-1	200	125	3	1	2	3	20	100	ELECTRIC UNIT HEATER EUH-1
–	–	–	–	3	4	–	–	–	–
–	–	–	–	5	6	–	–	–	–
EXHAUST FAN EF-1	100	15	3	7	8	3	125	200	WBP-2
–	–	–	–	9	10	–	–	–	–
–	–	–	–	11	12	–	–	–	–
SPARE	100	20	1	13	14	2	15	100	BFP POWER RACK
SPARE	100	30	2	15	16	–	–	–	–
–	–	–	–	17	18	1	20	100	SPARE
SPARE	100	20	3	19	20	1	20	100	SPARE
–	–	–	–	21	22	1	20	100	SPARE
–	–	–	–	23	24	3	20	100	SPARE
SPARE	100	20	1	25	26	1	–	–	SPACE
SPARE	100	40	3	27	28	1	–	–	SPACE
–	–	–	–	29	30	1	–	100	SPACE
SPD	100	40	3	31	32	–	–	–	–
–	–	–	–	33	34	–	–	–	–
–	–	–	–	35	36	–	–	100	SPACE
T-LP1	100	25	3	37	38	–	–	–	–
–	–	–	1	39	40	1	–	100	SPACE
–	–	–	1	41	42	1	–	100	SPACE

DRAWING NOTES:

[1] COORDINATE WITH INSTRUMENTATION DRAWINGS FOR WIRING REQUIREMENTS AND EQUIPMENT MANUFACTURER FOR CABLE TYPE, QUANTITY, AND LENGTH. FIELD COORDINATE PRIOR TO INSTALLATION.

LIGHTING FIXTURE SCHEDULE

FIXTURE TYPE	DESCRIPTION	MOUNTING	LAMPS NO	LAMPS WATTS	LAMPS TYPE	MANUFACTURER AND CATALOG NUMBER	VOLTS	REMARKS
A	INDUSTRIAL FLUORESCENT DAMP LOCATION, 1'X4' INSTANT START ELECTRONIC BALLAST, ACRYLIC DIFFUSER.	PENDANT M.H.=9'-6" A.F.F.	3	32	T8	LITHONIA DM-3-32-120-GEB10IS	120	
B	DECORATIVE WALL MOUNTED WET LOCATION, DIE CAST ALUMINUM HOUSING, DARK BRONZE, SEGMENTED REFLECTORS.	WALL M.H.=10'-0" A.F.F.	2	42	TRT	LITHONIA WST-2/42TRT-MD-120	120	COORDINATE OUTDOOR FIXTURE TYPE AND COLOR WITH ARCHITECT. PROVIDE WIRE GUARD
C	EMERGENCY BATTERY POWERED LIGHTING UNIT.	SURFACE	1	5.4	INCANDESCENT	COOPER LM1-6-10.8-7.2	120	
D	EXIT LIGHT, NEMA 4X, DIE CAST ALUMINUM, UNIVERSAL CONFIGURATION, NICKEL-CADMIUM BATTERY AND SELF-DIAGNOSTIC SYSTEM.	SURFACE	–	–	LED	LITHONIA LV-S-1-G-120-DL	120	

PANELBOARD LP1

10,000 AIC RATING TVSS — 100 AMP BUS — 50 AMP MCB
NEMA 12 ENCLOSURE — 208/120 VOLTS — 3 PHASE, 4 WIRE + GROUND
SURFACE MOUNTED — PANEL LOCATION: PUMP ROOM

LOAD SERVED	CIRCUIT BRKR FRAME	CIRCUIT BRKR TRIP	CIRCUIT BRKR P	CKT. NO.	CKT. NO.	CIRCUIT BRKR P	CIRCUIT BRKR TRIP	CIRCUIT BRKR FRAME	LOAD SERVED
–PCV–1	100	20	1	1	2	1	20	100	SCADA–1
–PUMP ROOM LIGHTS	100	20	1	3	4	1	20	100	–OUTSIDE RECEPTACLE
–OUTSIDE LIGHTS	100	20	1	5	6	1	20	100	–PUMP ROOM RECEPTACLE
–BATTERY CHARGER	100	20	1	7	8	1	20	100	GENERAL CONTROL PANEL
OIL HEATER	100	20	1	9	10	1	20	100	–PUMP ROOM RECEPTACLE
–PCV–2	100	20	1	11	12	1	20	100	–PUMP ROOM RECEPTACLE
PUMP CONTROL PANEL (PCP)	100	20	1	13	14	1	20	100	SPARE
IN–LINE THERMOSTAT	100	20	1	15	16	1	20	100	SPARE
SPARE	100	20	1	17	18	1	20	100	SPARE
SPARE	100	20	1	19	20	1	20	100	FLOW METER
SPARE	100	20	1	21	22	2	30	100	JACKET WATER HEATER (GEN)
SPARE	100	20	1	23	24	–	–	–	
SPARE	100	20	1	25	26	2	20	100	SPARE
SPARE	100	20	1	27	28	–	–	–	
SPARE	100	20	1	29	30	1	20	100	SPARE
SPACE	–	–	–	31	32	–	–	–	SPACE
SPACE	–	–	–	33	34	–	–	–	SPACE
SPACE	–	–	–	35	36	–	–	–	SPACE
SPD	100	40	3	37	38	–	–	–	SPACE
–	–	–	–	39	40	–	–	–	SPACE
–	–	–	–	41	42	–	–	–	SPACE

OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

WR&A
WHITMAN, REQUARDT & ASSOCIATES, LLP
1180 Merchants Walk, Suite 100, Newport News, VA 23606

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

REV	DATE	DESCRIPTION

OLD DOMINION UTILITY SERVICES
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA, 23604
FEBRUARY 2013

SCALE: AS NOTED

OLD DOMINION UTILITY SERVICES
ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION

ELECTRICAL SCHEDULES

DRAWING: E7.01

SHEET: 34

INSTRUMENT SYMBOL IDENTIFIERS

J-3 (J-1 / J-2) J-4 J-5 J-6

J-1: IDENTIFICATION LETTERS (SEE TABLE BELOW)
J-2: LOOP NUMBER
J-3: VENDER DESIGNATOR (SEE NOTE 3)
J-4: FUNCTION BLOCK (SEE TABLE BELOW)
J-5: PANEL NUMBER
J-6: HAND SWITCH DESIGNATOR (SEE BELOW)

	FIRST LETTER		SUCCEEDING LETTER		
	VARIABLE	MODIFIER	PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		AUTOMATIC
B	BREAKER		USER'S CHOICE	CLOSE OR STOP	BYPASS
C	COMMUNICATIONS			CONTROL	CLOSED
D	DENSITY	DIFFERENTIAL		OPEN OR START	
E	VOLTAGE (EMF)		PRIMARY ELEMENT	SENSOR	
F	FLOW RATE	RATIO	FAIL	FAIL	FAIL
G	GAUGING		GLASS		LOCK/MANUAL/HAND
H	HAND				HIGH OR OPEN
I	CURRENT		INDICATE		INTERMEDIATE
J	POWER	SCAN			
K	TIME	TIME RATE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	MOTOR	MOMENTARY		MOTOR	MIDDLE
N	USER'S CHOICE		INPUT	FORWARD	ON OR OPERATE
O	USER'S CHOICE			OFF	OPEN
P	PRESSURE	PNEUMATIC	POINT (TEST)	POSITION	
Q	QUANTITY OR EVENT	TOTALIZE		EMERGENCY/ABNORMAL	
R	RADIOACTIVITY		RECORD OR PRINT	REMOTE	RUN
S	SPEED OR FREQUENCY	SLIM	SWITCH	SWITCH	STOP
T	TEMPERATURE			TRANSMIT	TRANSDUCER
U	MULTI VARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VARIABLE OR VISCOSITY			VALVE OR DAMPER	VFD / VALVE
W	WEIGHT OR FORCE		WELL		
X	MOD, LIGHT OR VALVE		UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	INTERLOCK			RELAY OR COMPUTE	RESET
Z	POSITION			DRIVE OR ACTUATOR	

GENERAL INSTRUMENT OR FUNCTION SYMBOLS	FIELD MOUNTED	PRIMARY LOCATION ACCESSIBLE TO OPERATOR	AUXILIARY LOCATION ACCESSIBLE TO OPERATOR	NORMALLY INACCESSIBLE OR BEHIND THE PANEL
GENERAL INSTRUMENT OR FUNCTION SYMBOLS	○	⊖	⊜	⊖
DISCRETE INSTRUMENTS	□	⊟	⊟	⊟
GENERAL INSTRUMENT OR FUNCTION SYMBOLS	⬡	⊖	⊜	⊖
GENERAL INSTRUMENT OR FUNCTION SYMBOLS	⊠	⊠	⊠	⊠

GENERAL CIRCUIT/CONDUIT TAG IDENTIFICATION

TAG	CONDUIT SIZE	CONDUCTORS	NOTES
C-X	3/4" (X=2 THRU 18) 1" (X=19 THRU 30) 2" (X=31 THRU 100)	X-#14, 1-#12G	STRANDED THHN WIRE
P-X	3/4" (X=2 THRU 14) 1" (X=15 THRU 24) 2" (X=25 THRU 80)	X-#12, 1-#12G	STRANDED THHN WIRE
STP-X	3/4" (X=1,2) 1" (X=3,4) 2" (X=5 THRU 16)	X-#16 SHIELDED TWISTED PAIR	STRANDED WIRE
C.F.O-X		(X) STRANDS MULTIMODE FIBER OPTIC CABLE	
C.F.O-J		(2) STRANDS MULTIMODE FIBER OPTIC JUMPER CABLE	WITH TERMINATION AS REQUIRED
I-M		CABLE AS PROVIDED OR RECOMMENDED BY EQUIPMENT MANUFACTURER. COORDINATE CONDUIT AND INSTALLATION REQUIREMENTS WITH MANUFACTURER.	

MISCELLANEOUS

(# OR X / I-#)

- DESIGNATION OF PLAN/SHEET NUMBER (1, 2, ETC.)
X - DESIGNATION OF SECTION LETTER (A, B, ETC.)

PRIMARY FLOW ELEMENTS

- ORIFICE PLATE
- VENTURI TUBE
- FLUME
- WEIR PLATE
- MAGNETIC FLOW METER
- SONIC FLOW METER
- FLOW NOZZLE
- VORTEX SENSOR

LINES

- MAIN PROCESS
- 12" DW — PIPE SYSTEM, PIPE SIZE IN INCHES
- ELECTRICAL SIGNAL
- SOFTWARE OR DATA LINK
- PNEUMATIC
- HYDRAULIC
- CAPILLARY TUBE
- ELECTROMAGNETIC OR SONIC (GUIDED)
- CAT 5E ETHERNET CABLE
- MULTI MODE FIBER OPTIC CABLE
- MECHANICAL OR ELECTRICAL — CONNECTED
- NOT CONNECTED

MISCELLANEOUS

- FLANGE
- UNION
- TEE
- REDUCER
- DIAPHRAGM SEAL
- I / 3 — INTERLOCK. NUMBER IS THE CROSS REFERENCE TO A SPECIFIC ELEMENTARY DIAGRAM OR TO A SPECIFIC CONTROL STRATEGY DESCRIBED IN THE SPECS
- EXPANSION JOINT
- FLEXIBLE COUPLING
- FLANGED COUPLING ADAPTER
- SLUICE/SIDE/WEIR GATE
- WATER LINE
- LEVEL PROBES (CONDUCTIVITY)
- LEVEL PROBES (ULTRASONIC)
- FLOAT SWITCH

EQUIPMENT

- PM — 3-PHASE MONITOR
- ETM — ELAPSED TIME METER
- OIT — OPERATOR INTERFACE TERMINAL
- LEVEL TRANSDUCER (SUBMERSIBLE)
- P — POLYPHASE SURGE PROTECTOR
- HORN
- SUBMERSIBLE PUMP
- PUMP

VALVES

- GATE VALVE
- GLOBE VALVE
- PLUG VALVE
- CHECK VALVE
- PINCH VALVE
- DIAPHRAGM VALVE
- BUTTERFLY VALVE
- BALL VALVE

TYPICAL CONNECTIONS

- IN-LINE DEVICE
- DIRECT CONNECTION TO PROCESS
- DIAPHRAGM SEAL CONNECTION

ABBREVIATIONS

A	= ALARM
AI	= ANALOG INPUT
AO	= ANALOG OUTPUT
AUTO	= AUTOMATIC
ATS	= AUTOMATIC TRANSFER SWITCH
xx	= xx
CIM	= COMMUNICATIONS INTERFACE MODULE
CPT	= CONTROL POWER TRANSFORMER
xx	= xxx
DI	= DISCRETE INPUT
DO	= DISCRETE OUTPUT
xx	= xx
DPDT	= DOUBLE POLE-DOUBLE THROW
E-STOP	= EMERGENCY STOP BUTTON
EUH	= ELECTRIC UNIT HEATER
ETM	= ELAPSED TIME METER
F	= FAULT
FP	= FLOW PACE
HMI	= HUMAN MACHINE INTERFACE
I	= INTERLOCK CONTROL
I/O	= INPUT/OUTPUT
IP	= INFLUENT PUMP
LM	= LEVEL MAINTAIN CONTROL
M	= ELECTRIC MOTOR
MMR	= MOTOR MANAGEMENT RELAY
MOD	= MOTOR OPERATED DAMPER
MPD	= MOTOR PROTECTIVE DEVICE
MSP	= MOTOR STARTER PANEL
O/C	= OPEN/CLOSE
OIT	= OPERATOR INTERFACE TOUCHSCREEN
OT	= OVER TEMPERATURE
PDIT	= PRESSURE DIFFERENTIAL INDICATION TRANSMITTER
PLC	= PROGRAMMABLE LOGIC CONTROLLER
PM	= PRESSURE MAINTAIN CONTROL
PSCADA	= PLANT SCADA SYSTEM
PVCC	= PVC COATED
R/O	= RUN/OFF
RTU	= REMOTE TELEMETRY UNIT
xxx	= xxx
SL	= SEAL LEAK
SP	= SPEED
SP	= SUMP PUMP
S/S	= START/STOP
SSRV	= SOLID STATE REDUCED VOLTAGE
TEMP	= TEMPERATURE
TSP	= TWISTED SHIELDED PAIR
TYP	= TYPICAL
VAC	= VOLTS/ALTERNATING CURRENT
VDC	= VOLTS/DIRECT CURRENT
VFD	= VARIABLE FREQUENCY DRIVE

PANEL LEGEND:

XX

- FSTB — FLOAT SWITCH TERMINAL BOX
- MCC — MOTOR CONTROL CENTER
- TIP — TERMINAL INTERFACE PANEL
- PCP — PUMP CONTROL PANEL
- VFD — VARIABLE FREQUENCY DRIVE
- IC — INTEGRAL CONTROL UNIT
- PLC — PROGRAMMABLE LOGIC CONTROLLER

PLC INDICATION

XXX

MODIFIER XXX LEGEND
FCP = PUMP CONTROL PANEL (PCP)

VALVE OPERATORS

- DIAPHRAGM
- DIAPHRAGM PRESSURE BALANCED
- M — MOTOR
- CYLINDER OPERATOR
- S — SOLENOID
- SV — SOLENOID VALVE

INSTRUMENT SUPPLY SERVICES

- AS — INSTRUMENT AIR SUPPLY REFER TO ISA RP7.7 FOR INSTRUMENT AIR QUALITY STANDARDS
- ES — 120 VAC ELECTRICAL SERVICE (DIFFERENT VOLTAGES ARE SPECIFICALLY NOTED)

PLC INPUT/OUTPUT

- DISCRETE INPUT
- ANALOG INPUT
- DISCRETE OUTPUT
- ANALOG OUTPUT

ELEMENTARY WIRING SYMBOLS

- CR — CONTROL RELAY
- NORMALLY OPEN CONTACT
- NORMALLY CLOSED CONTACT
- FUSE
- CIRCUIT BREAKER
- SELECTOR SWITCH, XOO = REPRESENTS THE SWITCH POSITIONS
- PUSHBUTTON
- M — MOTOR
- TERMINAL BLOCK
- THERMOSTAT CLOSE ON RISING/TEMPERATURE
- NORMALLY OPEN LIMIT SWITCH
- NORMALLY OPEN TIMED CLOSED CONTACT
- FLOAT SWITCH
- GROUND
- FIELD WIRING
- PLC OUTPUT VIA INTERPOSING RELAY
- PANEL WIRING

NOTES:

1. THIS IS A GENERALIZED LEGEND SHEET. THIS CONTRACT MAY NOT USE ALL INFORMATION SHOWN.
2. INFORMATION SHOWN MAY NOT BE ALL INCLUSIVE. ALSO SEE ISA S5.1, S5.3 AND S7.3.
3. INSTRUMENTS MARKED WITH ASTERISK ARE FURNISHED WITH EQUIPMENT.
4. REFER TO ISA RP7.7 FOR INSTRUMENT AIR SUPPLY QUALITY STANDARDS.

REV	DATE	DESCRIPTION

OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

WR&A
WHITMAN, REQUARDT & ASSOCIATES, LLP
1870 Merchants Walk, Suite 100, Newport News, VA 23606

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

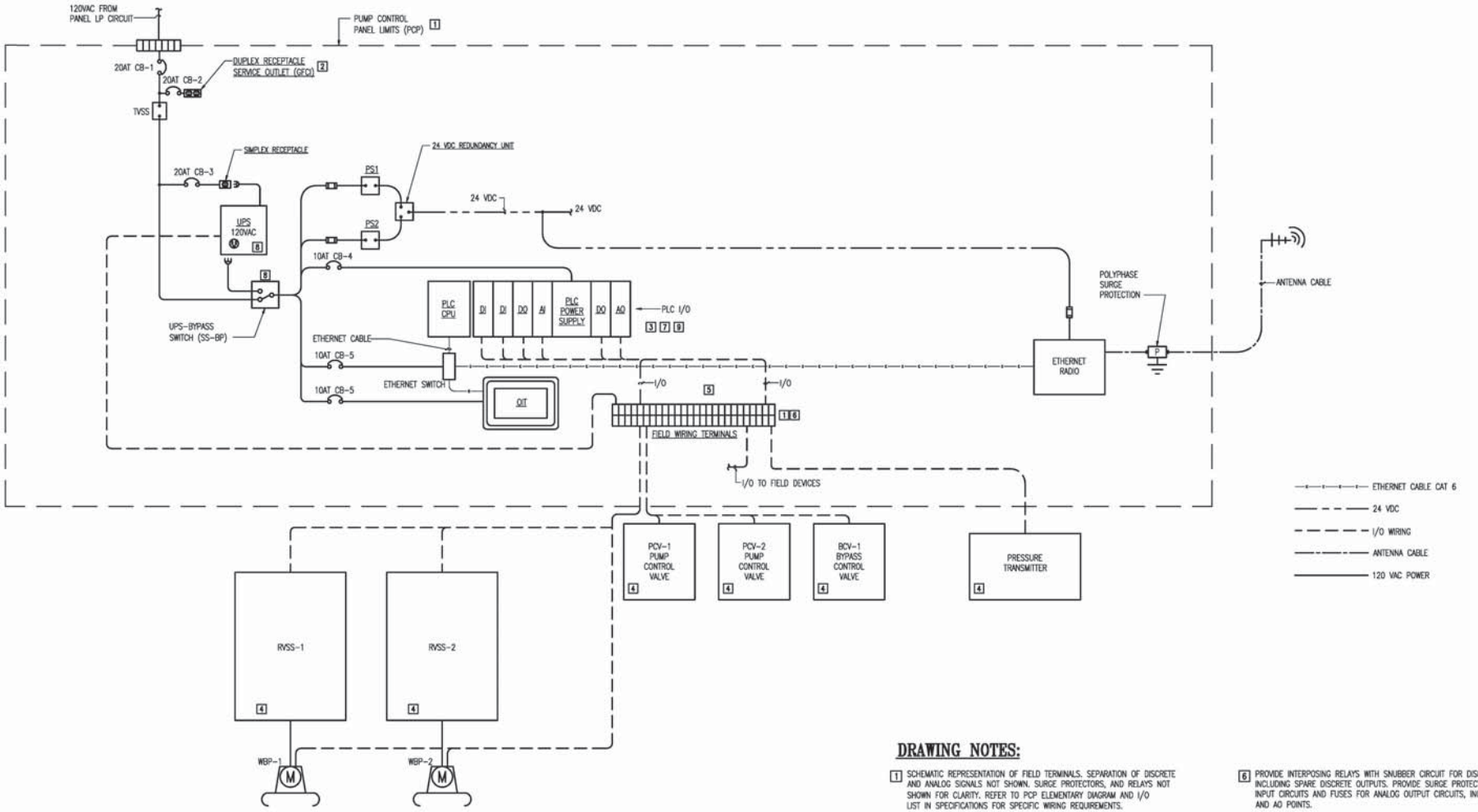
OLD DOMINION UTILITY SERVICES
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA, 23604
FEBRUARY 2013

SCALE: NONE

OLD DOMINION UTILITY SERVICES
ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION

I & C ABBREVIATIONS AND LEGEND

DRAWING: I0.01
SHEET: 35



DRAWING NOTES:

1. SCHEMATIC REPRESENTATION OF FIELD TERMINALS. SEPARATION OF DISCRETE AND ANALOG SIGNALS NOT SHOWN. SURGE PROTECTORS, AND RELAYS NOT SHOWN FOR CLARITY. REFER TO PCP ELEMENTARY DIAGRAM AND I/O LIST IN SPECIFICATIONS FOR SPECIFIC WIRING REQUIREMENTS.
2. PROVIDE SERVICE OUTLET (GFCI)
3. AS A MINIMUM, PROVIDE I/O CARDS IN QUANTITIES AS INDICATED IN SPECIFICATION SECTION 13351, I/O LIST. REFER TO PCP-1 ELEMENTARY DIAGRAM AND I/O LIST IN SPECIFICATIONS FOR I/O REQUIREMENTS. I/O THAT IS NOT USED SHALL BE WIRED TO FIELD TERMINAL BLOCKS AND LABELED AS SPARES.
4. EQUIPMENT MOUNTED REMOTELY FROM CONTROL PANEL PCP.
5. DIAGRAM IS SCHEMATIC REPRESENTATION ONLY. PROVIDE TERMINAL BLOCKS, TERMINALS, WIRING, LABELS, RELAYS, SWITCHES AND COMPONENTS REQUIRED FOR PLC SYSTEM INSTALLATION AS REQUIRED FOR A COMPLETE OPERATING SYSTEM.
6. PROVIDE INTERPOSING RELAYS WITH SNUBBER CIRCUIT FOR DISCRETE OUTPUTS, INCLUDING SPARE DISCRETE OUTPUTS. PROVIDE SURGE PROTECTION FOR ANALOG INPUT CIRCUITS AND FUSES FOR ANALOG OUTPUT CIRCUITS, INCLUDING SPARES AI AND AO POINTS.
7. CPU SHALL BE LEFT MOST MODULE IN THE SYSTEM AND MUST BE WITHIN FOUR MODULES FROM PLC POWER SUPPLY. PROVIDE WARM BACK-UP PLC ARRANGEMENT IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
8. PROVIDE UPS WITH BY-PASS SWITCH FOR BACK-UP POWER; MINIMUM OF 2 HOURS.
9. NOT ALL REQUIRED I/O CARDS ARE SHOWN. PROVIDE QUANTITY OF I/O CARDS, CARD TYPES, INTERFACE MODULES AND CABLING TO ACCOMMODATE THE QUANTITY OF I/O INDICATED IN THE SPECIFICATIONS.

OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

WHITMAN, REQUARDT & ASSOCIATES, LLP
1870 Merchants Walk, Suite 100, Newport News, VA 23606

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

REV	DATE	DESCRIPTION

OLD DOMINION UTILITY SERVICES
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA, 23604
FEBRUARY 2013

SCALE: NONE

OLD DOMINION UTILITY SERVICES
ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION

CONTROL SYSTEM ARCHITECTURE

DRAWING: I0.02

SHEET: 36

GENERAL NOTES:

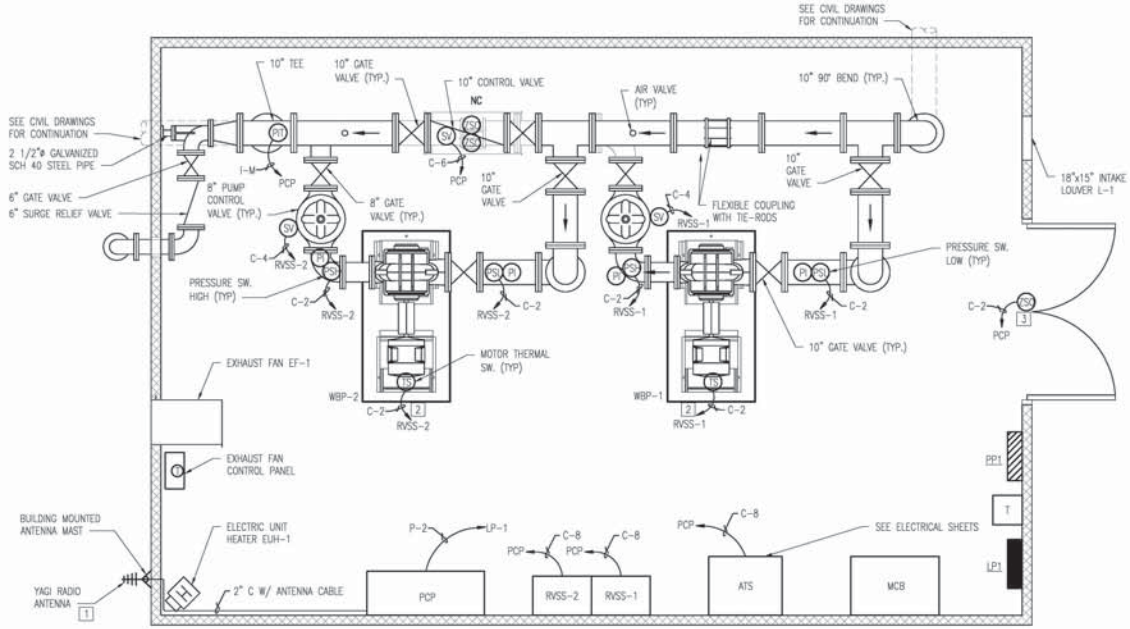
1. REFER TO SHEET I0.01 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES

SPECIFIC NOTES:

[1] MOUNT YAGI ANTENNA ON BUILDING MOUNTED ANTENNA MAST. INSTALL ANTENNA WITH WATER PROOFING AND GROUNDING KITS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. ANTENNA SHALL BE POINTED IN DIRECTION OF MASTER CONTROLLER.

[2] MOTOR WINDING INTERNAL TEMPERATURE SWITCH.

[3] INSTALL DOOR POSITION SWITCH ON PRIMARY LOCKING DOOR.



A / M2.01 PLAN
SCALE: 1/2" = 1'-0"

OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

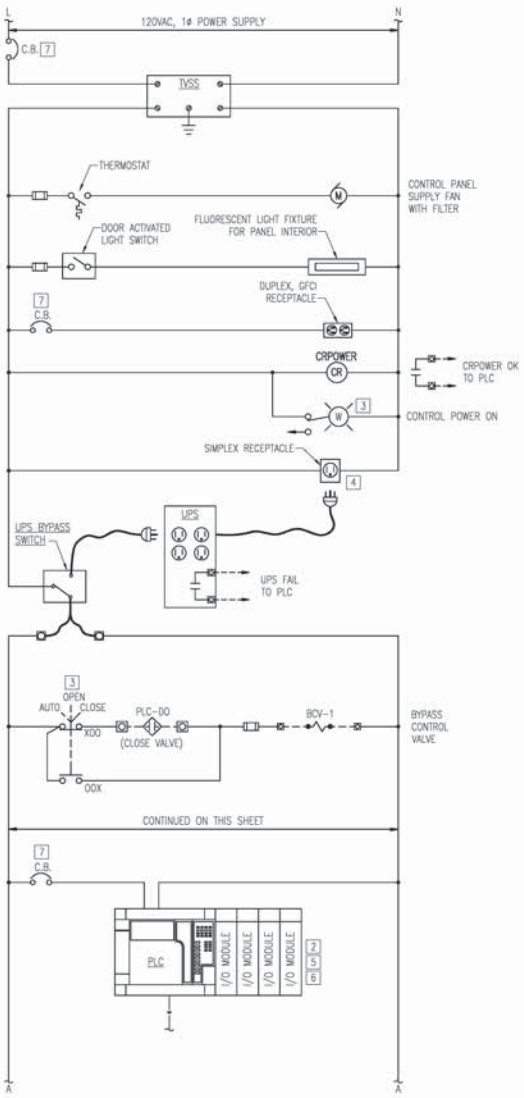
WHITMAN, REQUARDT & ASSOCIATES, LLP
1870 Merchants Walk, Suite 100, Newport News, VA 23606

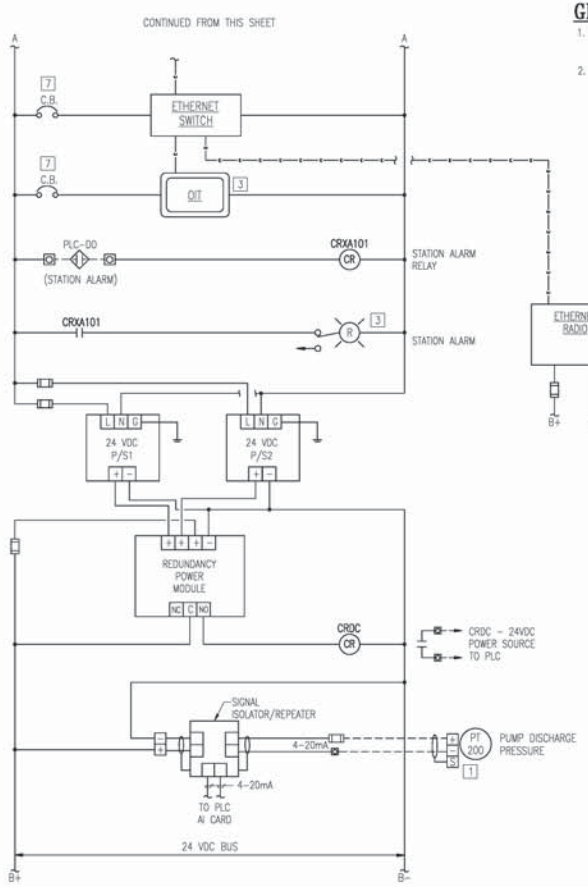
90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

0 1' 2' 4'
SCALE: 1/2" = 1'-0"

REV	DATE	DESCRIPTION

OLD DOMINION UTILITY SERVICES 2023 HARRISON ROAD FORT EUSTIS, VIRGINIA, 23604 FEBRUARY 2013	SCALE 1/2" = 1'-0"	OLD DOMINION UTILITY SERVICES ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION	INSTRUMENTATION & CONTROLS PLAN	DRAWING I2.01	SHEET 37





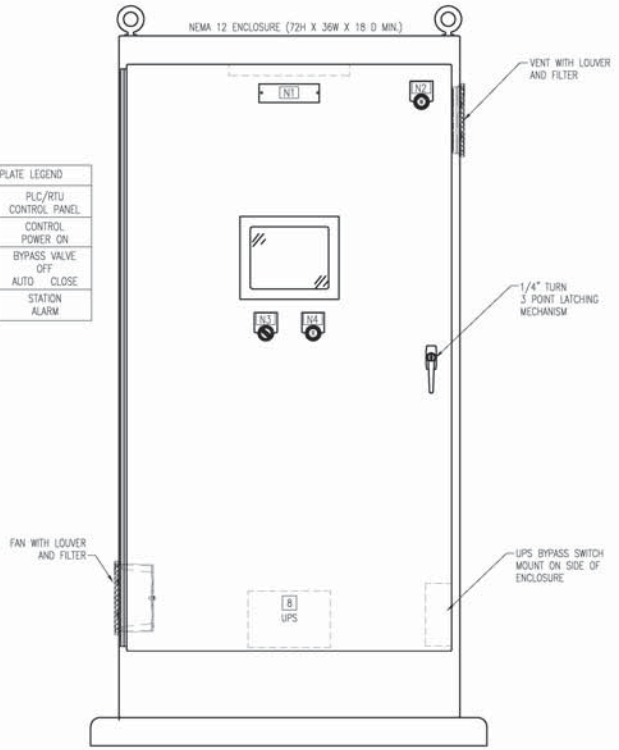
GENERAL NOTES:

1. REFER TO SHEET I0.01 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES
2. UNLESS OTHERWISE INDICATED, EACH OF THE I/O SIGNALS BROUGHT FROM THE FIELD TO THE PUMP CONTROL PANEL SHALL BE PROVIDED WITH AN INTERPOSING RELAY IN THE PUMP CONTROL PANEL TO ISOLATE THE DEVICE POWER FROM THE CONTROL POWER.

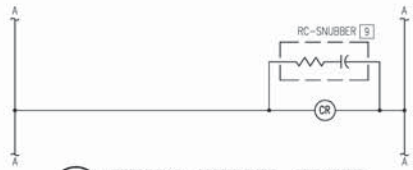
SPECIFIC NOTES:

1. EQUIPMENT LOCATED IN FIELD.
2. NOT ALL I/O MODULES ARE SHOWN. PROVIDE I/O MODULES AS SPECIFIED.
3. EQUIPMENT LOCATED ON THE FACE OF THE PCP. ALL OTHER ITEMS ARE MOUNTED INTERIOR TO PCP.
4. LABEL AS "UPS RECEPTACLE"
5. ALL DISCRETE I/O INTERFACE WITH THE PLC SHALL UTILIZE 24VDC POWER.
6. NOT ALL I/O WIRING AND CONNECTIONS TO I/O CARDS ARE SHOWN. PROVIDE WIRING FOR I/O TO PLC I/O AS REQUIRED FOR ACTIVE AND SPARE I/O PER THE I/O LIST ON THE SPECIFICATIONS AND THE CONTRACT DRAWINGS, AS APPLICABLE. PROVIDE INTERPOSING RELAYS WITH FOR DISCRETE OUTPUTS, BOTH ACTIVE AND SPARES. PROVIDE FUSES ON ANALOG INPUTS AND OUTPUTS, BOTH ACTIVE AND SPARES. PROVIDE WIRING OF ALL I/O, INCLUDING SPARES, TO FIELD TERMINAL STRIPS.
7. PROVIDE PERMANENT LABEL AT EACH CB WITH CIRCUIT AND/OR EQUIPMENT BEING FED.
8. MOUNT UPS ON STEEL CHANNEL STAND AS REQUIRED TO SEPARATE FROM BOTTOM ENTRY CONDUIT AND WIRES.
9. PROVIDE SNUBBER CIRCUIT FOR ALL RELAY AND SOLENOID COILS. USE RED LION SNUB0000 OR EQUAL DIODE SUPPRESSION.

NAMEPLATE LEGEND	
N1	PLC/RTU CONTROL PANEL
N2	CONTROL POWER ON
N3	BYPASS VALVE OFF AUTO CLOSE
N4	STATION ALARM



1 / 16.01 **PUMP CONTROL PANEL ELEMENTARY**
NOT TO SCALE



2 / 16.01 **TYPICAL SNUBBER CIRCUIT**
NOT TO SCALE

3 / 16.01 **PUMP CONTROL PANEL ELEVATION**
NOT TO SCALE

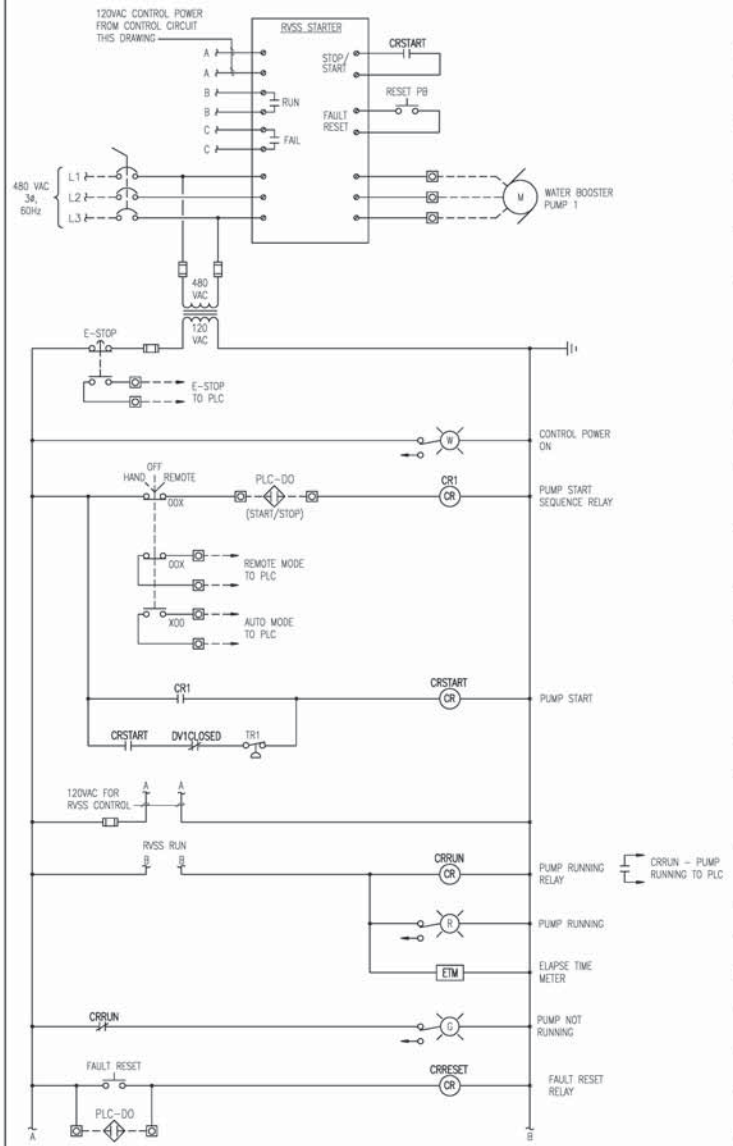
OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

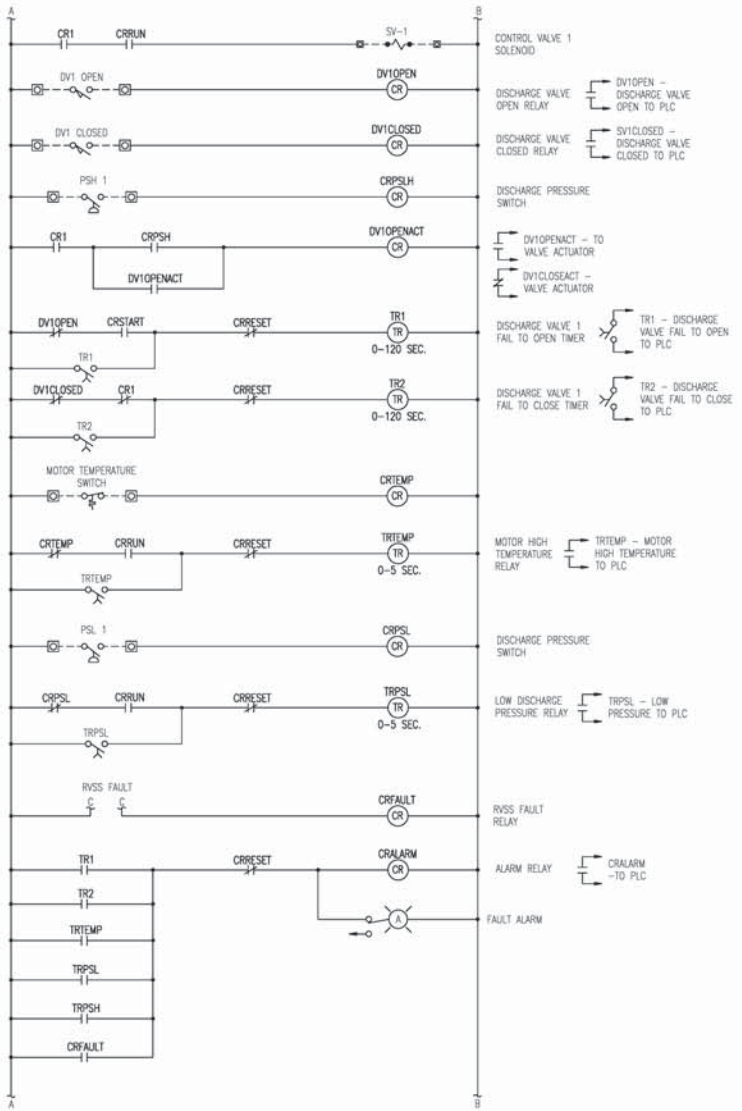
WHITMAN, REQUARDT & ASSOCIATES, LLP
1870 Merchants Walk, Suite 100, Newport News, VA 23606

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

REV	DATE	DESCRIPTION

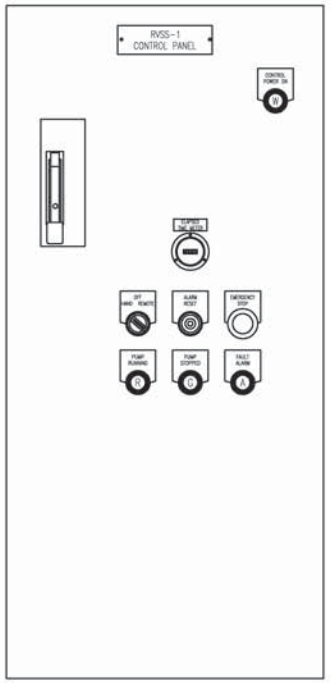
OLD DOMINION UTILITY SERVICES 2023 HARRISON ROAD FORT EUSTIS, VIRGINIA, 23604 FEBRUARY 2013	SCALE NONE	OLD DOMINION UTILITY SERVICES ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION	PUMP CONTROL PANEL	DRAWING I6.01	SHEET 38





DRAWING NOTES

1. SEE DRAWING I0.01 FOR GENERAL NOTES, ABBREVIATIONS, SYMBOLS AND LEGEND.



WATER BOOSTER PUMP 1 ELEMENTARY AND PANEL ELEVATION

1 / 16.02

NOT TO SCALE

TYPICAL FOR WATER BOOSTER PUMP 2

OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

WHITMAN, REQUARDT & ASSOCIATES, LLP
1870 Merchants Walk, Suite 100, Newport News, VA 23606

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

REV	DATE	DESCRIPTION

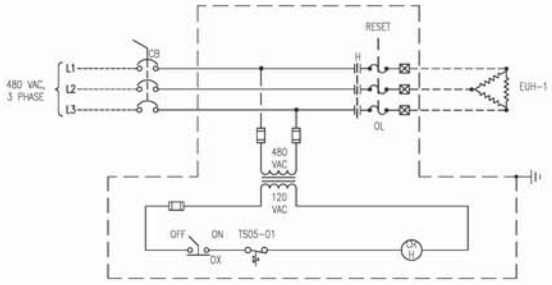
OLD DOMINION UTILITY SERVICES 2023 HARRISON ROAD FORT EUSTIS, VIRGINIA, 23604 FEBRUARY 2013	SCALE NONE	OLD DOMINION UTILITY SERVICES ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION	WATER BOOSTER PUMP ELEMENTARY	DRAWING I6.02	SHEET 39

DRAWING NOTES

1. SEE DRAWING I0.01 FOR GENERAL NOTES, ABBREVIATIONS, SYMBOLS AND LEGEND.

SPECIFIC NOTES

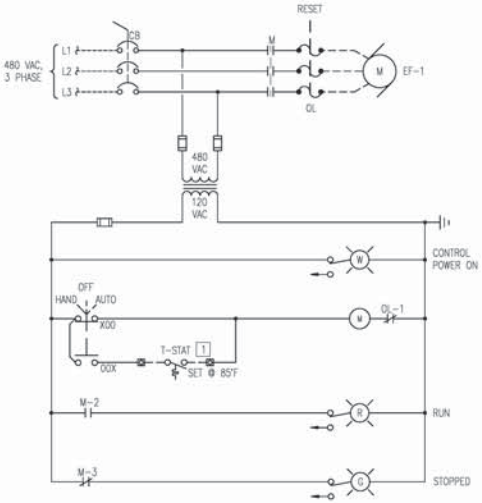
[1] THERMOSTAT MOUNTED OUTSIDE CONTROL PANEL.



1 / I6.03 **ELECTRIC UNIT HEATER ELEMENTARY**

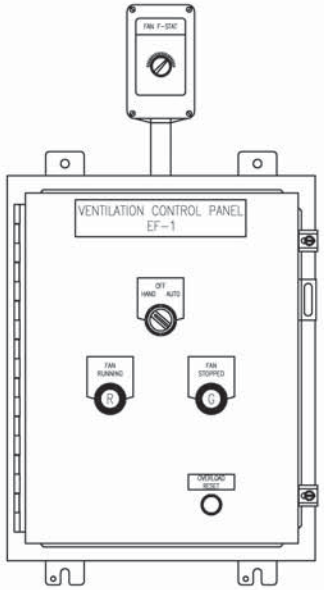
NO SCALE

CONTROLS TO BE LOCATED INTERNAL TO HEATER UNIT.



2 / 16.03 **PUMP ROOM EXHAUST FAN EF-1 MOTOR STARTER CONTROL ELEMENTARY**

NOT TO SCALE



3 / 16.03 **VENTILATION CONTROL PANEL ELEVATION**

NOT TO SCALE

OLD DOMINION UTILITY SERVICES INCORPORATED
2023 HARRISON ROAD
FORT EUSTIS, VIRGINIA 23604

WHITMAN, REQUARDT & ASSOCIATES, LLP
11870 Merchants Walk, Suite 100, Newport News, VA 23606

90% SUBMITTAL
NOT TO BE USED FOR CONSTRUCTION
2/19/2013

REV	DATE	DESCRIPTION

OLD DOMINION UTILITY SERVICES 2023 HARRISON ROAD FORT EUSTIS, VIRGINIA, 23604 FEBRUARY 2013	SCALE NONE	OLD DOMINION UTILITY SERVICES ALTERNATE WATER SUPPLY LINE AND BOOSTER STATION	VENTILATION CONTROL ELEMENTARY	DRAWING I6.03	SHEET 40

Appendix C – Record of Non-Applicability

RECORD OF NON-APPLICABILITY (RONA) FOR CLEAN AIR ACT CONFORMITY

Joint Base Langley-Eustis, Newport News, Virginia

The proposed action falls under the Record of Non-Applicability (RONA) category and, therefore, is documented within this RONA.

Old Dominion Utilities Service (ODUS), in coordination with the Fort Eustis portion of Joint Base Langley-Eustis (JBLE-FE), is proposing to construct a new water supply point for the purposes of improving reliability of the water system in the instance of a break in the post's water main or maintenance on the Newport News supply line. The alternative water supply would serve as a secondary connection to JBLE-FE and provide necessary redundancy in the system. The proposed water supply point would tie into the existing 16-inch water main along Enterprise Drive, near the Icelandic Seafood Corporation building and Oakland Industrial Park, and extend approximately 2,450 linear feet south to tie into the JBLE-FE system. A precast pump station and maintenance access road would also be constructed as part of the proposed project. Construction would include activities such as excavation, site grading, trenching, and pipe installation.

In accordance with the *General Conformity Rule* of the Clean Air Act, Section 176(c)(4), the proposed project has been evaluated for the potential air emissions associated with its construction to determine if the maximum annual emissions would result in any violations of National Ambient Air Quality Standards (NAAQS) or maintenance plans established for the project area. The Clean Air Act requires the Environmental Protection Agency to set NAAQS for principal pollutants considered to be harmful to public health and the environment, which include carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), particle pollution (PM), and sulfur dioxide (SO_2).

Regulated under 40 CFR 93 (b), the *General Conformity Rule* states that no department, agency, or instrumentality of the Federal Government shall engage in, provide financial assistance for, approve, or support any activity that does not conform to applicable State Implementation Plans (SIP) designated for areas being in non-attainment for any established NAAQS or maintenance plans (maintenance areas). Threshold (*de minimis*) rates of emissions have been determined for by the Environmental Protection Agency (EPA) for federal actions with the potential to have significant air quality impacts or be incompatible with SIPs. If a proposed action, located in an area designated for non-attainment or maintenance, exceeds these *de minimis* threshold levels, a general conformity determination is required to show that the project would not interfere with the area's NAAQS goals.

JBLE-FE is located within the Hampton Roads Intrastate Air Quality Control Region (AQCR), as designated in 40 CFR 81.93. The existing air quality attainment status designations for Hampton Roads Intrastate AQCR are classified in 40 CFR 81.321[1] as:

[1] Attainment status designations obtained from 40 CFR §81, Subpart C (07-01-2012 Edition)

- better than national standards for SO_2;
- unclassifiable/attainment for CO;
- attainment for O3 (1-hour) standard;
- cannot be classified or better than national standards for NO_2;
- unclassifiable/attainment for O3 (8-hour);
- unclassifiable/attainment for PM2.5 (annual NAAQS);
- unclassifiable/attainment for PM2.5 (24-hour NAAQS); and
- not designated for Pb or PM10.

The Hampton Roads Intrastate AQCR was initially designated as a nonattainment area based on 1997 8-hour ozone standards; however, after several consecutive years of air quality improvements, the EPA approved its application for resignation to attainment in June 2007. Since then, Hampton Roads has been designated as a maintenance area for 8-hour ozone. As a result, a *General Conformity* applicability analysis has been conducted for the alternative water supply line into JBLE-FE to determine if the proposed action would exceed established *de minimis* thresholds for this air quality contaminant. **Table 1** compares the calculated emissions and EPA's *de minimis* standards. Because ozone forms from other emissions, the analysis focuses on ozone precursors that include volatile organic compounds (VOCs), sulfur oxides (SOx), and nitrogen oxides (NOx).

Table 1: Comparison of Construction and Operation Emissions to General Conformity Rule De Minimis Thresholds

	Emissions (tons/year)		
	VOCs	SOx	NOx
2013 Construction Emissions	0.0085	.0008	0.545
Annual Operation Emissions	0	0	0
De Minimis Thresholds[1]	50	100	100
Threshold Exceeded?	**No**	**No**	**No**

[1]EPA threshold for maintenance areas (40 CRF 93§153).

The result of the analysis concludes that the proposed project would remain below the *de minimis* threshold for an 8-hour ozone maintenance area and would be exempt from the requirements of the *General Conformity Rule*. JBLE-FE is in attainment for all other area criteria pollutants; therefore, these pollutants are not subject to a conformity review. Supporting documentation and calculations for these emissions findings are included in the pages that follow.

RONA APPROVAL

Mr. Michael Shaffer
Air Program Manager
Civil Engineer Division,
Environmental Element, Fort Eustis, VA

12 June 2013

~~Date 15 March 2013~~

AIR QUALITY CALCULATIONS AND ANALYSIS

Air pollutant emissions associated with the project's operational activities would be too minimal to model since the sole source of emissions would be the intermittent use of a backup generator for the proposed pump station, during occasional power failures. As a result the alternative water supply line would not result in any perceivable emissions of criteria pollutants once it is installed.

Pollutant emissions during the construction of the proposed project would be expected to occur and have been calculated based on the anticipated schedule for project completion. Construction of the proposed project would consist of a simple pipe laying and erection of a precast pump station building. The work is scheduled to begin in late February 2013 and be completed by June 2013.

Air emissions associated with construction phase would directly correlate with the running of heavy equipment during construction and the delivery of construction materials (concrete and workers). The estimated construction emissions were calculated by considering the duration of construction (120 days), the construction equipment anticipated to be used, the estimated number of days each piece of equipment would be used, and the estimated portion of those days that the piece would be running. The construction equipment considered for each phase is listed below:

1. Front End Loader
2. Dump Truck
3. Water Truck
4. Excavator
5. Concrete Truck
6. Compactor/Tamper
7. Concrete Truck
8. Dozer/Crawler Tractor

Emissions Calculations and Conclusions

Standard emissions factors and the predicted horsepower of each listed construction implement were used to derive an approximate calculation of emissions during each phase of construction. For several of the equipment pieces, specific emissions factors could not be obtained; therefore, some assumptions had to be made. The total emissions for each year of construction are intended to be "planning level" estimates to be used for comparison to the *de minimis* thresholds for the 8-hour ozone maintenance area (see table below). The computations and assumptions are included in the calculation sheet that follows this document.

Construction Phase	Total Emissions		
	VOC	NOx	SOx
Total Emissions for Project (tons)	0.025978	1.657029	0.002391
Total Emissions per Year (tons/year)	0.008541	0.544777	0.002391
de minimis Threshold (tons/year)	50	100	100
Exceed Threshold?	No	No	No

Description of Units and Factors Used for Emissions Calculations

- **Equipment Power**: Rated equipment power in horsepower
- **Utilization Factor**: Anticipated portion of 8-hour workday in which equipment will be used
- **Emission Factor**: Characteristic of each piece of equipment in grams per horsepower-hour. Carbon monoxide (CO), nitrogen oxides (NOx), sulfur oxides (SOx), particulate matter (PM_{10}), carbon dioxide (CO_2), and methane (CH_4) were derived from 2013 average emission factors listed in SCAQMD's *Off-road Mobile Source Emission Factors* database (2008). Factors for volatile organic compounds were unavailable through this database and were obtained for 2005 (Koizumi 2005).
- **Quantity of Equipment Set-Ups**: Number of equipment rigs running at any given time during the work day
- **Total Project Emissions**: Sum of emissions for each phase of construction
- **Total Emissions per Year**: Total per year emissions based on the complete project duration

Formulas for Calculating Emissions

The formulas used in the emissions calculations are provided below:

Emissions (pounds per day) = Equipment Power (horsepower) x Utilization Factor x Emission Factor (grams per horsepower-hour) x 0.00220462 (pounds per gram) x 8 (hours per day)

Total Emissions (pounds) = Emissions per day x Total Equipment Days

Total Emissions per Phase (tons) = Sum of Total Emissions/2000 (pounds)

Total Emissions per Year (tons) = Total Emissions in Tons x (Total Project Workdays/365)

REFERENCES CONSULTED

Clean Air Act, Section 176(c), 42 USC §7596(c) (2003).

Commonwealth of Virginia (October, 2006). *Request for Redesignation to Attainment for the Hampton Roads Nonattainment Area*. Department of Environmental Quality: Richmond, VA. <http://www.deq.state.va.us/Portals/0/DEQ/Air/Planning/HRREDGN1.pdf> Accessed February 11, 2013.

Designation of Areas for Air Quality Planning Purposes, 40 CFR §81 (2012).

Determining Conformity of Federal Actions to State or Federal Implementation Plans, 40 CFR §93(B) (1993).

Environmental Protection Agency (EPA) (2010). *Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling-Compression Ignition*. Office of Transportation and Air Quality, Assessment and Standards Division. Report No. NR-009d.

Koizumi, J. (2005). *Sample Construction Scenarios for Projects Less than Five Acres in Size*. South Coast Air Quality Management District, Diamond Bar, CA. <http://www.aqmd.gov/ceqa/handbook/lst/FinalReport.pdf> Accessed October 09, 2012.

South Coast Air Quality Management District (SCAQMD) (2008). *Off-road Mobile Source Emission Factors (Scenario Years 2007-2025)*. South Coast AQMD, Diamond Bar, CA. <http://www.aqmd.gov/ceqa/handbook/offroad/offroad.html> Accessed October 10, 2012.

CALCULATION SHEET: ALTERNATIVE WATER SOURCE, JOINT BASE LANGLEY-EUSTIS

1 gram	0.0022046 pounds
1 ton	2000.00 pounds
Hours per Day	8.00 hours
Work days per Week	5.00 days
Project Duration	24.00 weeks (22 Feb 2013-12 June 2014)
Total Project Workdays	120 days

CONSTRUCTION PHASE

Equipment	Fuel Type	Equipment Power	Utilization Factor	Emissions Factors (g/hp-hr)								Quantity of Equipment Set-ups	Emissions (lbs/day)								Total Equipment Days	Total Emissions (lbs)							
				CO	VOC	NO_x	SO_x	PM10	PM2.5	CO_2	CH_4		CO	VOC	NO_x	SO_x	PM10	PM2.5	CO_2	CH_4		CO	VOC	NO_x	SO_x	PM10	PM2.5	CO_2	CH_4
Front End Loader	Diesel	108	0.75	1.334	0.060	1.725	0.002	0.145	0.140	195.529	0.024	1	1.905	0.086	2.465	0.003	0.207	0.201	279.331	0.034	120	228.655	10.287	295.797	0.393	24.815	24.070	33519.751	4.060
Dump Truck	Diesel	350	0.75	0.577	0.024	1.621	0.002	0.057	0.056	247.057	0.018	1	2.672	0.110	7.503	0.011	0.266	0.258	1143.802	0.082	120	320.640	13.167	900.398	1.347	31.929	30.971	137256.266	9.866
Water Truck	Diesel	250	0.1	0.577	0.024	1.621	0.002	0.057	0.056	247.057	0.018	1	0.254	0.010	0.715	0.001	0.025	0.025	108.934	0.008	120	30.537	1.254	85.752	0.128	3.041	2.950	13072.025	0.940
Excavator	Diesel	250	1	0.643	0.022	2.061	0.003	0.068	0.066	287.910	0.020	1	2.833	0.096	9.088	0.014	0.298	0.289	1269.462	0.090	120	339.983	11.520	1090.563	1.714	35.743	34.671	152335.452	10.762
Concrete Truck	Diesel	335	0.25	0.577	0.024	1.621	0.002	0.057	0.056	247.057	0.018	1	0.852	0.035	2.394	0.004	0.085	0.082	364.927	0.026	120	102.299	4.201	287.270	0.430	10.187	9.881	43791.285	3.148
Compactor/Tamper	Diesel	8	0.1	0.797	0.034	0.951	0.002	0.037	0.036	130.447	0.014	1	0.011	0.000	0.013	0.000	0.001	0.001	1.841	0.000	120	1.349	0.058	1.610	0.003	0.063	0.061	220.867	0.023
Concrete Pump Truck	Diesel	400	0.1	0.577	0.024	1.621	0.002	0.057	0.056	247.057	0.018	1	0.407	0.017	1.143	0.002	0.041	0.039	174.294	0.013	120	48.859	2.006	137.203	0.205	4.865	4.719	20915.240	1.503
Dozer/Crawler Tractor	Diesel	150	0.5	1.931	0.060	3.247	0.004	0.185	0.179	314.114	0.039	1	2.554	0.079	4.296	0.005	0.245	0.237	415.501	0.052	120	306.451	9.463	515.465	0.561	29.343	28.463	49860.119	6.213
																			Total Emissions for this Phase (lbs)			1378.7737	51.95576	3314.05816	4.782325	139.9861	135.7865	450971.005	36.51408
																			Total Emissions for this Phase (tons)			0.6893868	0.025978	1.65702908	0.002391	0.069993	0.067893	225.4855025	0.018257
																			Total Emissions per Year (tons)			0.2266477	0.008541	0.54477668	0.000786	0.023011	0.022321	74.13222	0.006002

Appendix D – Wetland Delineation Memo

WHITMAN, REQUARDT & ASSOCIATES, LLP
ENGINEERS · ARCHITECTS · PLANNERS
EST. 1915

MEMORANDUM

Date: 12/7/2012

To: John Thomas,WRA
From: David Kwasniewski
Subject: Fort Eustis Alternate Water Source Jurisdictional Determination Reconnaissance
CC:

Work Order Number: 19227-002
Contract Number: N/A
Project: Fort Eustis Alternate Water Source

On November 19, 2012 Whitman,Requardt and Associates environmental scientist David Kwasniewski and engineer John Thomas performed a wetland delineation of the Fort Eustis Alternate Water Source project. The site is located north of the Fort Eustis Military Base and south of Enterprise Drive between address 190 and 182 Enterprise Drive Newport News,VA.

The study area drains toward Skiffes Creek, which ultimately drains into the James River and the Chesapeake Bay. The United States Geological Survey recognizes the study area as part of the Lower James watershed, hydrological unit code (HUC) 02080206. Overall, the study area is relatively flat and drains to the west. The entire project area is forested. Common tree species found were willow oak (*Quercus phellos*), red maple (*Acer rubrum*), sweet gum (*Liquidambar styraciflua*), Amercian Holly (*Ilex opaca*), and loblolly pine (*Pinus taeda*).

Section 404 of the Clean Water Act requires that waters of the U.S., including wetlands, be identified and delineated. The project area was traversed to identify jurisdictional areas. Our field visit found two wetland areas approximately ten to fifteen foot by 8 foot (80 to 120 square feet) in size. These areas were not flagged in the field. Both of the areas are located along the eastern portion the project area and are not hydrologically connected to water of the U.S.. Therefore, these wetlands are considered to be isolated. The dominant wetland vegetation are cattail (*Typha latifolia*), soft rush (*Juncus effuses*) and woolgrass (*Scirpus cyperinus*). No standing water was found. However water stained leaves shows evidence that hydrology is present.

One soil profile located in uplands was taken near the northern portion the project area during the delineation. The soil characteristics represent the majority of the site:

Depth from soil surface
0-2 inches were roots mixed/loam with a color of 7.5YR 3/1,
2-9 inches was a clay loam with a color of 10YR 5/2, and
9-17 inches was clay with a color of 10YR 5/3 and mottles 10YR 5/2

Permitting

The permitting requirements and permit timelines are driven by the nature of the proposed activity. The permit process should be initiated early in final design after field surveys and alignment selection is finalized. During the planning and design phase of this project all efforts will be made to avoid and minimize impacts to the maximum extent practicable.

Wetlands on site lack a surface connection to the waters of the U.S. and are believed to be isolated. The USACE does not regulate isolated wetlands. However, a Jurisdictional Waters Determination Request is still necessary from the USACE to confirm the wetlands on site. The Virginia Department of Environmental Quality (DEQ) regulates impacts into isolated wetlands. Due to the nature of this project it is anticipated that these wetland areas will be temporarily impacted during the construction of this project. Coordination with the DEQ will be required.

David Kwasniewski – Environmental Scientist

Appendix E – Federal Consistency Determination

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
TDD (804) 698-4021
www.deq.virginia.gov

Douglas W. Domenech
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

May 16, 2013

Mr. Timothy P. Christensen
733 Mission Support Group
Civil Engineer Division, U.S. Air Force
Joint Base Langley-Eustis
1407 Washington Boulevard
Fort Eustis, Virginia 23604

RE: Environmental Assessment and Federal Consistency Determination for the Alternate Water Supply System and Booster Station at Joint Base Langley-Eustis, Newport News, (DEQ 13-060F)

Dear Mr. Christensen:

The Commonwealth of Virginia has completed its review of the above-referenced document. The Department of Environmental Quality is responsible for coordinating Virginia's review of federal environmental documents submitted under the National Environmental Policy Act (NEPA) and responding to appropriate federal officials on behalf of the Commonwealth. DEQ is also responsible for coordinating Virginia's review of federal consistency documents submitted pursuant to the Coastal Zone Management Act (CZMA) and providing the state's response. The following agencies and planning district commission joined in this review:

Department of Environmental Quality
Department of Game and Inland Fisheries
Department of Conservation and Recreation
Department of Health
Virginia Marine Resources Commission
Department of Forestry
Department of Transportation
Department of Historic Resources
Hampton Roads Planning District Commission

In addition, the Department of Agriculture and Consumer Services and the City of Newport News were invited to comment on the proposal.

PROJECT DESCRIPTION

The Departments of the Army and Air Force (Army/Air Force) propose to construct an alternate water supply system and booster station on Joint Base Langley-Eustis (JBLE-FE) at Fort Eustis in the City of Newport News. Old Dominion Utility Service (ODUS) owns and operates the water and sanitary sewer facilities at JBLE-FE and would install the new water supply point. Construction would include excavation, site grading, trenching and pipe installation. In addition, a meter vault, backflow preventer, water booster station, 2,450 linear feet of buried 12-inch pipe, and a 1,700-linear foot long by 12-foot wide gravel maintenance access road would be installed. A secondary connection would provide redundant water service to account for potential future water outages, which would improve system reliability. Two primary alternatives for the proposed action were identified and evaluated. Alternative 1, on Shellabarger Drive and Alternative 2, in the Oakland Industrial Park. Alternative 2 received the highest score and is the least expensive alternative due to its shorter length and lack of a river crossing. Accordingly, Alternative 2, in the Oakland Industrial Park, was selected as the preferred alternative. In order to meet demands, construction shall be completed and the alternate water supply system will be fully operational no later than September 30, 2013.

CONCLUSION

Provided activities are performed in accordance with the recommendations which follow in the Impacts and Mitigation section of this report, this proposal is unlikely to have significant effects on ambient air quality, water quality, wetlands, important farmland, forest resources, and historic resources. It is unlikely to adversely affect species of plants or insects listed by state agencies as rare, threatened, or endangered.

ENVIRONMENTAL IMPACTS AND MITIGATION

1. Surface Waters and Wetlands. According to the EA (page 22), no streams were identified on affected private land during field visits to the area. However, a perennial stream is located immediately adjacent to the study area within Training Area 2. The perennial stream runs beside and under (through a culvert system) the route along the main Training Area 2 Maneuver Trail. There will be no direct impact to the perennial stream in terms of mechanical alteration.

The EA (page 20) states that two wetlands were identified on the private land within the limits of the project. Construction would impact approximately 0.003 acres of palustrine emergent (PEM) wetlands located on private property. No wetlands on JBLE-FE property will be impacted. Proposed impacts to two small isolated wetlands may require a Joint Permit Application be submitted to the regulatory agencies. No mitigation is anticipated to be required for this project due to minimal size of the impacts.

1(a) Agency Jurisdiction. The State Water Control Board (SWCB) promulgates Virginia's water regulations, covering a variety of permits to include Virginia Pollutant Discharge Elimination System Permit, Virginia Pollution Abatement Permit, Surface and Groundwater Withdrawal Permit, and the Virginia Water Protection Permit (VWPP). The VWPP is a state permit which governs wetlands, surface water, and surface water withdrawals/impoundments. It also serves as § 401 certification of the federal *Clean Water Act* § 404 permits for dredge and fill activities in waters of the U.S. The VWPP Program is under the Office of Wetlands and Water Protection/Compliance, within the DEQ Division of Water Quality Programs. In addition to central office staff that review and issue VWP permits for transportation and water withdrawal projects, the six DEQ regional offices perform permit application reviews and issue permits for the covered activities.

1(b) Agency Findings. The VWPP program at DEQ's Tidewater Regional Office (DEQ-TRO) finds that the project, as proposed, will involve minor impacts to surface waters. Therefore, VWPP authorization is required.

1(c) Recommendations. In general, DEQ recommends that stream and wetland impacts be avoided to the maximum extent practicable. To minimize unavoidable impacts to wetlands and waterways, DEQ recommends the following practices:

- Operate machinery and construction vehicles outside of stream-beds and wetlands; use synthetic mats when in-stream work is unavoidable.
- Preserve the top 12 inches of trench material removed from wetlands for use as wetland seed and root-stock in the excavated area.
- Design erosion and sedimentation controls in accordance with the most current edition of the Virginia Erosion and Sediment Control Handbook. These controls should be in place prior to clearing and grading, and maintained in good working order to minimize impacts to State waters. The controls should remain in place until the area is stabilized.
- Place heavy equipment, located in temporarily impacted wetland areas, on mats, geotextile fabric, or use other suitable measures to minimize soil disturbance, to the maximum extent practicable.
- Restore all temporarily disturbed wetland areas to pre-construction conditions and plant or seed with appropriate wetlands vegetation in accordance with the cover type (emergent, scrub-shrub, or forested). The applicant should take all appropriate measures to promote revegetation of these areas. Stabilization and restoration efforts should occur immediately after the temporary disturbance of each wetland area instead of waiting until the entire project has been completed.
- Place all materials which are temporarily stockpiled in wetlands, designated for use for the immediate stabilization of wetlands, on mats, geotextile fabric in order to prevent entry in State waters. These materials should be managed in a manner that prevents leachates from entering state waters and must be entirely removed within thirty days following completion of that construction activity. The disturbed areas should be returned to their original contours, stabilized within

thirty days following removal of the stockpile, and restored to the original vegetated state.
- Flag or clearly mark all non-impacted surface waters within the project or right-of-way limits that are within 50 feet of any clearing, grading, or filling activities for the life of the construction activity within that area. The project proponent should notify all contractors that these marked areas are surface waters where no activities are to occur.
- Employ measures to prevent spills of fuels or lubricants into state waters.

1(d) Requirements. Surface water or wetland impacts will require authorization from DEQ-TRO under the VWPP program prior to any land disturbance. The project may require VWPP issued by DEQ-TRO or a U.S. Army Corps of Engineers (Corps) Nationwide Permit which has received Section 401 Water Quality Certification from DEQ.

The initiation of the VWPP review process is accomplished through the submission of a Joint Permit Application (JPA) (form MRC 30-300) to the Virginia Marine Resources Commission (VMRC). Upon receipt of a JPA for the proposed surface waters impacts, VWPP staff at DEQ-TRO will review the proposed project in accordance with the VWPP program regulations and guidance.

1(e) Conclusion. Provided that a VWPP or a Corps Nationwide Permit which has received Section 401 Water Quality Certification is obtained and complied with, the project will be consistent with the VWPP Program.

2. Subaqueous Lands Impacts. The Federal Consistency Determination section of the EA (Appendix E) states that no subaqueous land use is proposed under this action.

2(a) Agency Jurisdiction. The Virginia Marine Resources Commission (VMRC), pursuant to Section 28.2-1200 *et seq.* of the *Code of Virginia*, has jurisdiction over any encroachments in, on, or over any state-owned rivers, streams, or creeks in the Commonwealth.

VMRC serves as the clearinghouse for the JPA used by the:

- U.S. Army Corps of Engineers for issuing permits pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act;
- DEQ for issuance of a Virginia Water Protection Permit;
- VMRC for encroachments on or over state-owned subaqueous beds as well as tidal wetlands; and
- local wetlands board for impacts to wetlands.

2(b) Agency Findings. VMRC finds that the proposed construction elements of the project will not impact state-owned subaqueous bottom based on information in the EA. Therefore, a permit from VMRC will not be required.

For additional information, contact VMRC, Mike Johnson at (757) 247-2255.

3. Erosion and Sediment Control and Stormwater Management. According to the EA (page 22), construction impacts could have a short-term effect on water resources by increasing stormwater runoff from the site and carrying sediment and contamination loads into nearby waters during heavy rain. Construction activities would comply with the *Virginia Erosion and Sediment Control Regulations* and the *Virginia Stormwater Management Regulations* to avoid or minimize erosion.

3(a) Agency Jurisdiction. DCR's Division of Stormwater Management (DSM) administers the *Virginia Erosion and Sediment Control Law and Regulations* (*VESCL&R*) and *Virginia Stormwater Management Law and Regulations* (*VSWML&R*).

3(b) Requirements.

(i) Erosion and Sediment Control and Stormwater Management Plans

According to DCR-DSM, the Army/Air Force and its authorized agents conducting regulated land-disturbing activities on private and public lands in the state must comply with the *VESCL&R*, *VSWML&R* (including coverage under the general permit for stormwater discharge from construction activities), and other applicable federal nonpoint source pollution mandates (e.g., *Clean Water Act* Section 313 and federal consistency under the *Coastal Zone Management Act*). Clearing and grading activities, installation of staging areas, parking lots, roads, buildings, utilities, or other structures, soil or dredge spoil areas, or related land conversion activities that disturb 10,000 square feet or more (2,500 square feet or more in designated Chesapeake Bay Preservation Areas (CBPAs)), or areas on federal lands which are analogous to CPBAs, would be regulated by *VESCL&R* and *VSWML&R*. Accordingly, the Army/Air Force must prepare and implement an erosion and sediment control (ESC) plan to ensure compliance with state law and regulations. The ESC plan is submitted to the DCR Regional Office that serves the area where the project is located for review for compliance. The Army/Air Force is ultimately responsible for achieving project compliance through oversight of on site contractors, regular field inspection, prompt action against non-compliant sites, and other mechanisms consistent with agency policy. [Reference: *VESCL* §10.1-567].

(ii) Virginia Stormwater Management Program General Permit for Stormwater Discharges from Construction Activities

DCR is responsible for the issuance, denial, revocation, termination and enforcement of the Virginia Stormwater Management Program (VSMP) General Permit for Stormwater Discharges from Construction Activities related to municipal separate storm sewer systems (MS4s) and construction activities for the control of stormwater discharges from MS4s and land disturbing activities under the Virginia Stormwater Management Program.

The operator or owner of a construction project involving land-disturbing activities equal to or greater than one acre (2,500 square feet or more in areas analogous to CBPAs) is required to register for coverage under the General Permit for Discharges of Stormwater from Construction Activities and develop a project specific stormwater pollution prevention plan (SWPPP). The SWPPP must be prepared prior to submission of the registration statement for coverage under the general permit and the SWPPP must address water quality and quantity in accordance with the VSMP Permit Regulations. General information and registration forms for the General Permit are available on DCR's website at http://www.dcr.virginia.gov/stormwater_management/stormwat.shtml. [Reference: *Virginia Stormwater Management Act* §10.1-603.1 *et seq.*; *VSMP Permit Regulations* 4 VAC-50 *et seq.*]

4. Chesapeake Bay Preservation Areas. The EA does not discuss impacts to areas analogous to Chesapeake Bay Preservation Areas.

4(a) Agency Jurisdiction. The Department of Conservation and Recreation's Division of Stormwater Management Local Implementation (LI) (formerly the Division of Chesapeake Bay Local Assistance) administers the Chesapeake Bay Preservation Act (Virginia Code sections 10.1-2100 through 10.1-2114) and *Chesapeake Bay Preservation Area Designation and Management Regulations* (9 VAC 10-20 *et seq.*).

4(b) Agency Comments. In the City of Newport News, the areas protected by the *Chesapeake Bay Preservation Act*, as locally implemented, require conformance with performance criteria. These areas include Resource Protection Areas (RPAs) and Resource Management Areas (RMAs) as designated by the local government. RPAs include:

- tidal wetlands,
- certain non-tidal wetlands,
- tidal shores, and
- a 100-foot vegetated buffer area located adjacent to and landward of these features and along both sides of any water body with perennial flow.

RMAs, which require less stringent performance criteria, include:

- one hundred year floodplains,
- highly erodible soils (including steep slopes), and
- a minimum 100-foot area landward of the inland boundary of the RPA.

4(c) Agency Findings. DCR-DSM finds that limited clearing and land disturbance is proposed in areas that would be designated as RMA and RPA and subject to locally enforced CBPA regulations.

4(d) Requirements.

(i) Construction in RPA and RMA

RPAs and RMAs are subject to the general performance criteria of 4 VAC 50-90-130 and must:

- minimize land disturbance,
- preserve indigenous vegetation, and
- minimize impervious cover.

If land disturbance is to exceed 2,500 square feet, the project must comply with the requirements of the *Virginia Erosion & Sediment Control Handbook*, Third Edition, 1992. Additionally, stormwater management criteria consistent with water quality protection provisions (4 VAC 3-20-17 *et seq.*) of the *Virginia Stormwater Management Regulations* (4 VAC 3-20) shall be satisfied.

In addition, the portions of the project within the RPA are subject to the development criteria of 4 VAC 50-90-140.

(ii) Water Line Exemption

The construction, installation, operation and maintenance of water lines within a Chesapeake Bay Preservation Area are conditionally exempt from the *Chesapeake Bay Preservation Area Designation and Management Regulations* (4 VAC 50-90-150 B 2), provided that:

1. to the degree possible, the location of such facilities should be outside RPA lands;
2. no more land shall be disturbed than is necessary to provide for the proposed utility installation;
3. all such construction, installation and maintenance of such utilities shall be in compliance with all applicable state and federal permits and designed and conducted in a manner that protects water quality; and
4. any land disturbance exceeding an area of 2,500 square feet complies with all erosion and sediment control requirements as referenced above.

(iii)1998 Federal Agencies' Chesapeake Ecosystem Unified Plan

The 1998 *Federal Agencies' Chesapeake Ecosystem Unified Plan* requires the signatories to fully cooperate with local and state governments in carrying out voluntary and mandatory actions to comply with the management of stormwater. The signatories also committed to encouraging construction design that minimizes natural area loss on new and rehabilitated federal facilities, adopts low impact development and best management technologies for stormwater and erosion and sediment control, and reduces impervious surfaces.

(iv) Chesapeake 2000

In addition, the *Chesapeake 2000* agreement committed the government agencies to a number of sound land use and stormwater quality controls. The signatories additionally committed the agencies to lead by example with respect to controlling nutrient, sediment and chemical contaminant runoff from government properties. In December 2001, the Executive Council of the Chesapeake Bay Program issued *Directive No. 01-1: Managing Storm Water on State, Federal and District-owned Lands and Facilities*, which includes specific commitments for the signatories to lead by example with respect to stormwater control.

4(e) Conclusion. DCR-DSM-LI concludes that the proposed activity would be consistent with the Chesapeake Bay Preservation Act and *Regulations* provided the project adheres to the above requirements.

5. Air Quality. According to the EA (page 16), air quality impacts resulting from the proposed project would be limited to the intermittent use of a backup generator for the pump station as well as pollutant emissions associated with construction activities, including airborne dust from ground disturbance, operations, combustion byproducts from construction equipment and worker travel during construction. The amount of emissions generated during the construction and subsequent operation of the alternative water supply would be minor and would not substantially affect regional air quality in or around Newport News and the Hampton Roads Intrastate Air Quality Control Region (AQCR).

5(a) Agency Jurisdiction. DEQ's Division of Air Pollution Control, on behalf of the State Air Pollution Control Board, develops and administers the *State Air Pollution Control Board Regulations for the Control and Abatement of Air* Pollution pursuant to the Air Pollution Control Law. DEQ is charged to carry out mandates of the state law and regulations as well as Virginia's federal obligations under the Clean Air Act as amended in 1990. The objective is to protect and enhance public health and quality of life through control and mitigation of air pollution. The Division ensures the safety and quality of air in Virginia by monitoring and analyzing air quality data, regulating sources of air pollution, and working with local, state and federal agencies to plan and implement strategies to protect Virginia's air quality. The appropriate regional office is directly responsible for issuing necessary permits to construct and operate all stationary sources in the region as well as monitoring emissions from these sources for compliance. As a part of this mandate, environmental documents for new projects to be undertaken in the State are also reviewed. Some projects require additional evaluation under the general conformity provisions of state and federal law.

5(b) Agency Findings. According to the DEQ Air Division, the project site is located in an ozone maintenance and emission control area for oxides of nitrogen (NOx) and volatile organic compounds (VOC).

5(c) Recommendation. The Army/Air Force should take all reasonable precautions to limit emissions of VOCs and NO_x, principally by controlling or limiting the burning of fossil fuels.

5(d) Requirements.

(i) Fugitive Dust

Fugitive dust must be kept to a minimum by using control methods outlined in 9 VAC 5-50-60 *et seq.* of the *Regulations for the Control and Abatement of Air Pollution.* These precautions include, but are not limited to, the following:

- Use, where possible, of water or chemicals for dust control;
- Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials;
- Covering of open equipment for conveying materials; and
- Prompt removal of spilled or tracked dirt or other materials from paved streets and removal of dried sediments resulting from soil erosion.

(ii) Open Burning

If project activities include the open burning or use of special incineration devices for the disposal of land clearing debris, this activity must meet the requirements of 9 VAC 5-130-10 through 9 VAC 5-130-60 and 9 VAC 5-130-100of the *Regulations* for open burning, and it may require a permit. The *Regulations* provide for, but do not require, the local adoption of a model ordinance concerning open burning. The project proponent should contact City of Newport News officials to determine what local requirements, if any, exist.

(iii) Fuel Burning Equipment

The operation of the backup generator may require permitting from DEQ prior to beginning construction of the facility (9 VAC 5-80, Article 6, Permits for New and Modified Sources). The project proponent should contact DEQ-TRO for guidance on whether this provision applies.

6. Solid and Hazardous Waste Management. According to the EA (page 29), solid wastes in the project area are collected and disposed of in the landfill off Big Bethel Road in the City of Hampton. Recycling collection is provided both on JBLE-FE and in the City of Newport News. Less than one acre of land would be disturbed as a result of the proposed action. Excavation depths would be limited to eight feet. Given the minimal anticipated ground disturbance, hazardous materials impacts are not anticipated.

6(a) Agency Jurisdiction. Solid and hazardous wastes in Virginia are regulated by the Virginia Department of Environmental Quality, the Virginia Waste Management Board

(VWMB) and the U.S. Environmental Protection Agency. They administer programs created by the federal Resource Conservation and Recovery Act, the Comprehensive Environmental Response Compensation and Liability ("Superfund") Act, and the Virginia Waste Management Act. DEQ administers regulations established by the Waste Management Board and reviews permit applications for completeness and conformance with facility standards and financial assurance requirements. All Virginia localities are required, under the *Solid Waste Management Planning Regulations*, to identify the strategies they will follow on the management of their solid wastes, to include items such as facility siting, long-term (20-year) use, and alternative programs such as materials recycling and composting.

6(b) Agency Comments. According to DEQ's Division of Land Protection and Revitalization (DEQ-DLPR) (formerly the Waste Division), solid and hazardous waste issues were generally addressed in the submission, and the EA indicated a search of solid and hazardous waste databases was performed. The DEQ DLPR conducted a cursory database search within zip code 23604, and finds that five Resource Conservation and Recovery Act (RCRA) sites, one Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) site, and three petroleum release sites were identified. A list of these sites is included in DEQ-DLPR comments attached to this response.

6(c) Recommendations.

(i) Data Base Search

DEQ-DLPR recommends that the Army/Air Force conduct a data base search of the project study area to identify any solid and hazardous waste sites that may impact or be impacted by the project. A list of data bases and guidance on performing searches is included in the comments submitted by DEQ-DLPR and attached to this response.

(ii) Pollution Prevention

DEQ encourages all projects and facilities to implement pollution prevention principles, including the reduction, reuse, and recycling of all solid wastes generated. All hazardous wastes should be minimized, and managed properly

6(d) Requirements.

(i) Solid and Hazardous Waste Management

Any soil that is suspected of contamination or wastes that are generated must be tested and disposed of in accordance with applicable federal, state, and local laws and regulations. All construction and demolition debris, including excess soil, must be characterized in accordance with the *Virginia Hazardous Waste Management Regulations* prior to disposal at an appropriate facility.

(ii) Asbestos-containing Material and Lead-based Paint

Affected structures should be checked for asbestos-containing materials (ACM) (such as insulation) and lead-based paint (LBP) prior to the installation of upgrades. If ACM or LBP are found, in addition to the federal waste-related regulations mentioned above, state regulations 9 VAC 20-80-640 for ACM and 9 VAC 20-60-261 for LBP must be followed.

Questions or requests for further information may be directed to DEQ-LPRD, Steve Coe at (804) 698-4029.

7. Natural Heritage Resources. According to the EA (page 25), a search of DCR's Natural Heritage Resources database indicated that there are no natural heritage resources within a two-mile radius of the project area.

7(a) Agency Jurisdiction.

(i) Department of Conservation and Recreation

The mission of the Virginia Department of Conservation and Recreation (DCR) is to conserve Virginia's natural and recreational resources. The DCR-Natural Heritage Program's (DCR-DNH) mission is conserving Virginia's biodiversity through inventory, protection, and stewardship. The Virginia Natural Area Preserves Act, 10.1-209 through 217 of the Code of Virginia, was passed in 1989 and codified DCR's powers and duties related to statewide biological inventory: maintaining a statewide database for conservation planning and project review, land protection for the conservation of biodiversity, and the protection and ecological management of natural heritage resources (the habitats of rare, threatened, and endangered species, significant natural communities, geologic sites, and other natural features).

(ii) Department of Agriculture and Consumer Services

The Endangered Plant and Insect Species Act of 1979, Chapter 39, §3.1-102- through 1030 of the *Code of Virginia*, as amended, authorizes the Virginia Department of Agriculture and Consumer Services (VDACS) to conserve, protect and manage endangered species of plants and insects. The VDACS Virginia Endangered Plant and Insect Species Program personnel cooperates with the U.S. Fish and Wildlife Service, DCR-DNH and other agencies and organizations on the recovery, protection or conservation of listed threatened or endangered species and designated plant and insect species that are rare throughout their worldwide ranges. In those instances where recovery plans, developed by the U.S. Fish and Wildlife Service, are available, adherence to the order and tasks outlines in the plans are followed to the extent possible.

7(b) Agency Findings. DCR-DNH searched its Biotics Data System for occurrences of natural heritage resources from the project area.

(i) Alternative 1: Shellabarger Drive

According to the information currently in DCR files, Hazel dodder (*Cuscuta coryli*, G5?/S2?/NL/NL) has been historically documented within the project site. Hazel dodder is a parasitic herb placed either under its own dodder family (Cuscutaceae) or within the morning glory (Convolvulaceae) family. It consists of an orange to yellow stem twining on a host plant which includes a variety of herbaceous and woody species (Weakley in prep.). Small, 4-5 parted, fleshy, white flowers form dense to loose clusters in mid to late summer. Found over much of the U.S. and Canada, hazel dodder is scattered around Virginia, with occurrences in the Coastal Plain, Ridge and Valley, and Northern Blue Ridge physiographic provinces. In Virginia it has been documented in highly variable, at least partially open, habitat including coastal marshes, dry greenstone glades in the Blue Ridge, and in dry forests over limestone in the Ridge and Valley. Threats include habitat destruction and herbicides. As some members of this genus can cause damage to cultivated plants, rare species of *Cuscuta* may be incidentally destroyed by efforts to protect crops (Cusick and Burns 1984). In order to accurately distinguish this rare dodder from more common species, surveys in Virginia need to be conducted during its blooming period, July-September.

(ii) Alternative 2: Oakland Industrial Park

According to the information currently in DCR files, Hazel dodder has been historically documented downstream from the project site.

(iii) Threatened and Endangered Plant and Insect Species

VDACS has regulatory authority to conserve rare and endangered plant and insect species through the Virginia Endangered Plant and Insect Species Act. Under a Memorandum of Agreement established between VDACS and DCR, DCR has the authority to report for VDACS on state-listed plant and insect species. DCR finds that the current activity will not affect any documented state-listed plants or insects.

(iv) State Natural Area Preserves

DCR files do not indicate the presence of any State Natural Area Preserves under the agency's jurisdiction in the project vicinity.

7(c) Recommendations.

(i) Erosion and Sediment Control

DCR recommends the implementation of and strict adherence to applicable state and local erosion and sediment control, and stormwater management laws and regulations to minimize adverse impacts to the aquatic ecosystem as a result of the proposed activities.

(ii) Natural Heritage Resources

The Army/Air Force should contact DCR-DNH at (804) 786-7951 to secure updated information on natural heritage resources if a significant amount of time passes before the project is implemented. New and updated information is continually added to the Biotics Data System.

8. Wildlife Resources and Protected Species. According to the EA (page 25), the U.S. Fish and Wildlife Service's (USFWS) Information, Planning, and Conservation System (IPaC) indicated that no federally threatened or endangered wildlife species or federal candidate species are known to occur within the limits of the project area. Searches of the Virginia Department of Game and Inland Fisheries database indicated that there are no rare, threatened, or endangered floral or faunal species within a two mile radius of the project site.

8(a) Agency Jurisdiction. The Department of Game and Inland Fisheries (DGIF), as the Commonwealth's wildlife and freshwater fish management agency, exercises enforcement and regulatory jurisdiction over wildlife and freshwater fish, including state or federally listed endangered or threatened species, but excluding listed insects (Virginia Code Title 29.1). The DGIF is a consulting agency under the U.S. Fish and Wildlife Coordination Act (16 U.S.C. sections 661 *et seq.*), and provides environmental analysis of projects or permit applications coordinated through DEQ and several other state and federal agencies. DGIF determines likely impacts upon fish and wildlife resources and habitat, and recommends appropriate measures to avoid, reduce, or compensate for those impacts.

8(b) Agency Findings.

(i) Bald Eagle

According to DGIF records, bald eagle nests and concentration zones have been documented from the project area. Based on the scope and location of the proposed work, DGIF does not anticipate it to result in adverse impacts upon this species.

(ii) James River and Skiffes Creek Anadromous Fish Use Areas

The Warwick River, James River and Skiffes Creek have been designated Anadromous Fish Use Areas. Based on the scope and location of the proposed work, DGIF does not anticipate it to result in adverse impacts upon these resources.

8(c) Recommendations.

(i) Bald Eagle

DGIF recommends coordination with the USFWS regarding possible impacts upon bald eagles.

(ii) General Protection of Wildlife Resources

DGIF offers the following general recommendations to minimize the adverse impacts of linear utility project development on wildlife resources:

- avoid and minimize impacts to undisturbed forest, wetlands, and streams to the fullest extent practicable;
- maintain naturally vegetated buffers of at least 100 feet in width around wetlands and on both sides of perennial and intermittent streams, where practicable;
- conduct significant tree removal and ground-clearing activities outside of the primary songbird nesting season of March 15 through August 15; and
- implement and maintain appropriate erosion and sediment controls throughout project construction and site restoration.

DGIF is available to work with the applicant to develop project-specific measures as necessary to minimize project impacts upon the Commonwealth's wildlife resources. DGIF understands that adherence to these general recommendations may be infeasible in some situations.

8(d) Conclusion. DGIF concludes that this project is consistent with the fisheries management enforceable policy of the Virginia Coastal Zone Management Program assuming adherence to erosion and sediment controls.

For additional information, contact DGIF, Amy Ewing at (804) 367-2211.

9. Forest Resources. According to the EA (page 25), approximately 0.81 acres of forested land would be disturbed. Approximately 0.32 acres would be affected on JBLE-FE property and 0.52 acres would be affected on private property. The disturbance would be linear, approximately 1,760 feet long and 20 feet wide. All other forest would remain intact. Given the limited acreage of forest that would be disturbed, and the linear nature of the disturbance, no mitigation is planned.

9(a) Agency Jurisdiction. The mission of the Virginia Department of Forestry (VDOF) is to protect and develop healthy, sustainable forest resources for Virginians. VDOF was established in 1914 to prevent and suppress forest fires and reforest bare lands. Since the Department's inception, it has grown and evolved to encompass other protection and management duties including: protecting Virginia's forests from wildfire, protecting Virginia's waters, managing and conserving Virginia's forests, managing state-owned lands and nurseries, and managing regulated incentive programs for forest landowners.

9(b) Agency Findings. VDOF finds that:

1. The forestland on the proposed site consists of mature hardwood forest but the loss should be minimal. According to the EA, approximately 0.81 acres of

forested land would be disturbed. While the proposed water line will traverse and bisect contiguous forest, the stated cleared width for the pipeline corridor is only 20 feet and should not create an adverse impact on the health of the forest ecosystem. Further, the water line will be buried when completed and the land above it managed in a grass state.

2. Best management practices are identified that when implemented will ensure that no trees outside the intended area of disturbance will be removed.
3. Given the limited acreage of forest that would be disturbed, VDOF does not request off-site mitigation.
4. VDOF commends USAF policy stipulating that forest resources must be managed for long-term sustainability, and that management must be compatible with protecting federally-listed threatened and endangered species, maintaining biodiversity, protecting the Chesapeake Bay watershed, and providing wildlife habitat enhancement and outdoor recreational activities. In addition, the forest management program must fully comply with all applicable federal laws, policies, and regulations pertaining to forest management.

For additional information, contact VDOF, Greg Evans at (434) 220-9035 or Buck Kline at (434) 977-5193.

10. Drinking Water. Development of the EA was coordinated with the Virginia Department of Health, Office of Drinking Water (EA, Appendix A).

10(a) Agency Jurisdiction. The Virginia Department of Health (VDH), Office of Drinking Water (ODW) reviews projects for the potential to impact public drinking water sources (groundwater wells and surface water intakes).

10(b) Agency Findings. VDH-ODW finds that there are two groundwater wells located within a 1 mile radius of the project site owned by the City of Newport News. Well 1B is 1,723 feet away from the project site and Well 1A is located 1,832 feet away from the project site.

There are 2 surface water intakes in Zone 1 (within a 5 mile radius) that are owned by the City of Newport News. The Skiffes Creek surface water intake is 1.5 located miles upgradient of the project site and the Lee Hall surface water intake is located 1.23 miles away from the project site.

10(c) Requirement. The Army/Air Force must submit an application for a construction permit with the local VDH Field Office.

For additional information, contact VDH-ODW, Diedre Forsgren at (804) 864-7241.

11. Transportation Impacts. According to the EA (page 26), transportation-related impacts from the proposed action would be negligible. Lane closures may occur intermittently along Enterprise Drive in order to move equipment to and from the project

site. No full roadway closures are anticipated. Construction and worker vehicles are expected to have sufficient parking space.

11(a) Agency Jurisdiction. The Virginia Department of Transportation (VDOT) provides comments pertaining to potential impacts to existing and future transportation systems.

11(b) Agency Findings. The VDOT Hampton Roads Planning Office reviewed the project for impacts to existing and proposed transportation facilities in relationship to the proposed construction and operation of an alternative water supply system and booster station on the Fort Eustis portion of the Joint Base Langley-Eustis.

There are several projects under design in VDOT's Six Year Plan and the Hampton Roads 2034 Long Range Plan that improves traffic flow in this area. They include:

- UPC 98812 – Route 60/143 Connector Study – PE only – James City County
- UPC 100200 – Skiffes Creek Connector Study – James City County
- UPC 13496 and 14598 - Route 60 Relocation – James City County and City of Newport News
- UPC 87201 – Skiffes Creek Bridge/Route 60 Relocation – James City County
- UPC 57313 – Route 64 Widening from 4-8 lanes – City of Newport News
- UPC 98570 – Fort Eustis Boulevard guardrail over Lee Hall Reservoir – City of Newport News
- UPC 91687 – Replace Route 105 (Fort Eustis Boulevard) Bridge over CSX Railroad – City of Newport News
- UPC 14952 – Warwick Boulevard – Install cantilever flashing lights and gates – City of Newport News
- UPC100856 - Oakland Industrial Park sidewalk – City of Newport News

The EA does not include a traffic analysis to validate traffic impacts. However, the anticipated traffic impact from the proposed redevelopment should be minimal and will not adversely impact traffic operations in this area.

11(c) Conclusion. VDOT concludes that this project will not have a negative impact on the transportation within the region.

For additional information, contact VDOT, Darryll D Lewis, P.E. at (757) 925-1622 or darryll.lewis@vdot.virginia.gov.

12. Historic Structures and Archaeological Resources. According to the EA (page 27), the USAF Civil Engineering Division reported in a letter to the Virginia Department of Historic Resources (DHR), dated January 4, 2013, that no historic properties are present in the project area. The document states that DHR issued its concurrence on January 23, 2013

12(a) Agency Jurisdiction. The Department of Historic Resources (DHR) conducts reviews of projects to determine their effect on historic structures or cultural resources under its jurisdiction. DHR, as the designated State's Historic Preservation Office, ensures that federal actions comply with Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended, and its implementing regulation at 36 CFR Part 800. The NHPA requires federal agencies to consider the effects of federal projects on properties that are listed or eligible for listing on the National Register of Historic Places. Section 106 also applies if there are any federal involvements, such as licenses, permits, approvals or funding.

12(b) Agency Comments. Pursuant to Section 106 NHPA, DHR has been in direct consultation with the Army/Air Force regarding this project (see EA, Appendix A) and the parties have reached consensus that the Alternative Water Supply System and Booster Station project will not affect historic properties.

For additional information, contact DHR, Roger Kirchen at (804) 482-6091.

13. Regional Planning District.

13(a) Jurisdiction. In accordance with the Code of Virginia, Section 15.2-4207, planning district commissions encourage and facilitate local government cooperation and state-local cooperation in addressing, on a regional basis, problems of greater than local significance. The cooperation resulting from this is intended to facilitate the recognition and analysis of regional opportunities and take account of regional influences in planning and implementing public policies and services. Planning district commissions promote the orderly and efficient development of the physical, social and economic elements of the districts by planning, and encouraging and assisting localities to plan, for the future.

13(b) Regional Comments. The Hampton Roads Planning District Commission (HRPDC) reviewed the EA and consulted with the City of Newport News regarding the project. According to the HRPDC, the project appears to be consistent with local and regional plans and policies.

For additional information, contact HRPDC, Dwight Farmer at (757) 420-8300.

FEDERAL CONSISTENCY UNDER THE COASTAL ZONE MANAGEMENT ACT

Pursuant to the Coastal Zone Management Act of 1972, as amended, federal activities located inside or outside of Virginia's designated coastal management area that can have reasonably foreseeable effects on coastal resources or coastal uses must, to the maximum extent practicable, be implemented in a manner consistent with the Virginia Coastal Zone Management Program (VCP). The VCP consists of a network of programs administered by several agencies. The DEQ coordinates the review of Federal Consistency Determinations (FCD) with agencies administering the Enforceable

and Advisory Policies of the VCP. A FCD is included in the EA (Appendix E) which includes an analysis of project impacts on the enforceable policies of the VCP.

Pursuant to 15 CFR §930.41(a) DEQ is allowed up to sixty days to conduct a coordinated review and respond to submitted Federal Consistency Determinations. The sixty-day review period for the Army/Air Force's FCD began on March 29, 2013 and ends on May 24, 2013.

Federal Consistency Public Participation

In accordance with 15 CFR § 930.2, public notice of the proposed action was published on DEQ's web site from April 2, 2013 to April 30, 2013. No public comments were received in response to the notice.

Federal Consistency Analysis

According to information in the FCD, the proposed activity would have no effect on the following enforceable policies: fisheries management; subaqueous lands management; dunes management; point source pollution control; and shoreline sanitation. The resource agencies that are responsible for the administration of the enforceable policies of the VCP generally agree with findings of the FCD. The applicant must ensure that the proposed action is consistent with the aforementioned policies. In addition, DEQ encourages that Army/Air Force to consider potential project impacts to the advisory policies (Attachment 2) of the VCP.

Federal Consistency Concurrence

Based on our review of the Army/Air Force's consistency determination, EA, and the comments and recommendations submitted by agencies administering the enforceable policies of the VCP, DEQ concurs that this proposal is consistent with the VCP provided the Army/Air Force obtains and complies with all applicable permits or approvals. Also, other state approvals which may apply to this project are not included in this concurrence. Therefore, the Army/Air Force must ensure that this project is constructed and operated in accordance with all applicable federal, state, and local laws and regulations.

REGULATORY AND COORDINATION NEEDS

1. Surface Waters and Wetlands. A Virginia Water Protection Permit may be required for project impacts pursuant to Virginia Code §62.1-44.15:5. Coordination with the appropriate agencies for anticipated impacts is accomplished through the submission of a JPA to VMRC. For additional information regarding the VWPP program, contact DEQ-TRO, Bert Parolari at (757) 518-2166.

2. Nonpoint Source Pollution.

2(a) Erosion and Sediment Control and Stormwater Management Plans. The Army/Air Force must ensure that it is in compliance with *Virginia's Erosion and Sediment Control Law* (Virginia Code 10.1-567) and *Regulations* (4 VAC 50-30-30 *et seq.*) and *Stormwater Management Law* (Virginia Code 10.1-603.5) and *Regulations* (4 VAC 3-20-210 *et seq.*). Land-disturbing activities equal to or greater than 10,000 square feet (2,500 square feet or more and lands analogous to CBPAs) would be regulated by *VESCL&R* and *VSWML&R*. The Army/Air Force is encouraged to contact DCR's Suffolk Regional Office at (757) 925-2468, for assistance with developing or implementing ESC and SWM plans to ensure project conformance.

2(b) Virginia Stormwater Management Program General Permit for Stormwater Discharges from Construction Activities. For projects involving land-disturbing activities of equal to or greater than one acre (2,500 square feet or more and lands analogous to CBPAs), the Army/Air Force is required to develop a project-specific stormwater pollution prevention plan and apply for registration coverage under the Virginia Stormwater Management Program General Permit for Discharges of Stormwater from Construction Activities (*VSMP Permit Regulations* 4 VAC-50 *et seq.*). Specific questions regarding the Stormwater Management Program requirements should be directed to Holly Sepety, DCR, at (804) 225-2613.

3. Chesapeake Bay Preservation Areas. This project must be consistent to the maximum extent practicable with the coastal lands management enforceable policy of the VCP as administered by DCR-DSM-LI through the *Chesapeake Bay Preservation Area Designation and Management Regulations* (9 VAC 10-20 *et seq.*). Project activities in areas analogous to CBPAs must comply with the conditions found at 4 VAC 50-90-150 B 2 to qualify for an exemption under the *Regulations*. The Army/Air Force must coordinate with DCR-DSM-LI, Nancy Miller at (804) 225-3441, to ensure compliance with the *Regulations*.

4. Air Quality. This project may be subject to air quality regulations administered by the Department of Environmental Quality. The following sections of Virginia Administrative Code are applicable:

- 9 VAC 5-50-60 *et seq.* governing fugitive dust emissions; and
- 9 VAC 5-130 *et seq.*, for open burning.

In addition, a permit may be required for any fuel-burning equipment. For more information and coordination contact DEQ-TRO, Troy Breathwaite at (757) 518-2106. Also, contact local Newport News officials for information on any local requirements pertaining to open burning.

5. Waste Management. All solid waste, hazardous waste, and hazardous materials must be managed in accordance with all applicable federal, state, and local environmental regulations. Some of the applicable state laws and regulations are:

- Virginia Waste Management Act (Code of Virginia Section 10.1-1400 *et seq.*);
- Virginia Hazardous Waste Management Regulations (VHWMR) (9 VAC 20-60);
- Virginia Solid Waste Management Regulations (VSWMR) (9 VAC 20-81);
- Virginia Vegetative Waste Management Regulations (9 VAC 20-101 *et seq.*); and
- Virginia Regulations for the Transportation of Hazardous Materials (9 VAC 20-110).

Some of the applicable Federal laws and regulations are:

- Resource Conservation and Recovery Act (RCRA) (42 U.S.C. Section 6901 *et seq.*, and the applicable regulations contained in Title 40 of the Code of Federal Regulations); and
- U.S. Department of Transportation Rules for Transportation of Hazardous materials (49 CFR Part 107).

For additional information, contact DEQ-TRO, Milt Johnston at (757) 518-2151.

5(a) Asbestos-Containing Material. If applicable, the owner or operator of a demolition activity, prior to the commencement of the activity, is responsible to thoroughly inspect affected structures for the presence of asbestos, including Category I and Category II nonfriable asbestos containing material (ACM). Upon classification as friable or non-friable, all waste ACM shall be disposed of in accordance with the Virginia Solid Waste Management Regulations (9 VAC 20-80-640), and transported in accordance with the Virginia regulations governing Transportation of Hazardous Materials (9 VAC 20-110-10 et seq.). Contact the DEQ Division of Land Protection and Revitalization (formerly the Waste Division), Linda Richardson at (804) 698-4318 and the Department of Labor and Industry, Ronald L. Graham (804) 786-0574 for additional information.

5(b) Lead-Based Paint. If applicable, this project must comply with the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) regulations, and with the Virginia Lead-Based Paint Activities Rules and Regulations. For additional information regarding these requirements contact the Department of Professional and Occupational Regulation, David Dick at (804) 367-8588.

6. Storage Tanks. The applicant must coordinate the removal, relocation or closure of any regulated petroleum ASTs or USTs with DEQ-TRO, Tom Madigan at (757) 518-2115 or temadigan@deq.virginia.gov in accordance with the requirements of the *Virginia Tank Regulations* (9 VAC 25-91-10 *et seq.* for ASTs and/or 9 VAC 25-580-10 *et seq.* for USTs).

The use of portable fuel AST(s) with a capacity of greater than 660 gallons and used for more than 120 days must be registered with DEQ using *AST Registration Form 7540-AST.* Tank registration may be accomplished by contacting DEQ-TRO, Tom Madigan at (757) 518-2115 or temadigan@deq.virginia.gov.

7. Natural Heritage Resources. Contact DCR-DNH, Rene Hypes at (804) 371-2708, to secure updated information on natural heritage resources if a significant amount of time passes before the project is implemented, since new and updated information is continually added to the Biotics Data System.

8. Wildlife Resources. Contact DGIF, Amy Ewing at (804) 367-2211, to develop project-specific measures as necessary to minimize project impacts upon wildlife resources.

9. Waterworks Regulations. The Virginia Department of Health administers both federal and state laws governing potable water. Contact VDH regarding any regulatory requirements under 12 VAC 5-590-10 *et seq.* that may be applicable to the proposed water main replacement project. In addition, potential impacts to public water distribution systems must be verified by the local utility. For more information and coordination, contact the Department of Health, Southeast Virginia Field Office #3 at (757) 683-2000.

Thank you for the opportunity to review the Draft Environmental Assessment and Federal Consistency Determination for the alternate water supply system and booster station at Joint Base Langley-Fort Eustis in the City of Newport News. Detailed comments of reviewing agencies are attached for your review. Please contact me at (804) 698-4325 or John Fisher at (804) 698-4339 for clarification of these comments.

Sincerely,

Ellie L. Irons, Program Manager
Environmental Impact Review

enclosures

Ec: Amy M. Ewing, DGIF
Keith R. Tignor, VDACS
Roberta Rhur, DCR
Barry Matthews, VDH
Steve Coe, DEQ-DLPR
Kotur S. Narasimhan, DEQ-DAPC
Cindy Keltner, DEQ-TRO
Tony Watkinson, VMRC
Greg Evans, VDOF
Buck Kline, VDOF
Chip Ray, VDOT
Roger W. Kirchen, DHR
Dwight Farmer, HRPDC

Sheila Mcallister, City of Newport News
Nick Nies, WR&A, LLP

DEPARTMENT OF ENVIRONMENTAL QUALITY
TIDEWATER REGIONAL OFFICE
ENVIRONMENTAL IMPACT REVIEW COMMENTS

May 13, 2013

PROJECT NUMBER: 13-060F

PROJECT TITLE: Alternate Water Supply System and Booster Station

As Requested, TRO staff has reviewed the supplied information and has the following comments:

Petroleum Storage Tank Cleanups:
There have been no petroleum releases at or adjacent to the preferred alternative for the proposed project. If evidence of a petroleum release is discovered during implementation of this project, it must be reported to DEQ, as authorized by Virginia Code # 62.1-44.34.8 through 9 and 9 VAC 25-580-10 et seq. Contact Ms. Rebecca Gehring at (757) 518-2190 or Mr. Gene Siudyla at (757) 518-2117. Petroleum-contaminated soils and ground water generated during the implementation of this project must be properly characterized and disposed of properly.

Petroleum Storage Tank Compliance/Inspections:
Installation and operation of any regulated petroleum storage tank(s) either AST or UST must also be conducted in accordance with the Virginia Regulations 9 VAC 25-91-10 et seq and / or 9 VAC 25-580-10 et seq. Please contact Tom Madigan (757) 518-2115 for additional details.
The installation or use of any portable aboveground petroleum storage tank (>660 gallons – 9 VAC 25-91-10 et seq.) for more than 120 days for this project must be reported to the DEQ Tidewater Regional Office Petroleum Storage Tank Program attn: Tom Madigan – DEQ Tidewater Regional Office – 5636 Southern Blvd., Virginia Beach, VA 23462. Phone (757) 518-2115.

Virginia Water Protection Permit Program (VWPP):
A review of the submitted information indicates that the project as proposed will involve minor impacts to surface waters and VWP authorization is required. Provided that a VWP permit or a U.S. Army Corps of Engineers Nationwide Permit which has received Section 401 Water Quality Certification is obtained and complied with, the project will be consistent with the VWP Program.

Air Permit Program :
A permit to construct and operate under 9 VAC 5 Chapter 80, Article 6, may be required for the operation of the backup generator. In addition, the fugitive dust provisions of 9 VAC 5 Chapter 40 of the Commonwealth of Virginia's Regulations for the Control and Abatement of Air Pollution will apply.

DEPARTMENT OF ENVIRONMENTAL QUALITY
TIDEWATER REGIONAL OFFICE
ENVIRONMENTAL IMPACT REVIEW COMMENTS

May 13, 2013

PROJECT NUMBER: 13-060F

PROJECT TITLE: Alternate Water Supply System and Booster Station

Water Permit Program :
Water Permits - Construction activities will require a storm water construction permit from DCR. On July 1, 2013, this permitting program will transfer from DCR to DEQ, so if the permit application is submitted after July 1, 2013, the applicant will need to submit to DEQ, nit DCR.

Ground Water – No comments

Waste Permit Program :
All construction and demolition debris, including excess soil, must be characterized in accordance with the Virginia Hazardous Waste Management Regulations prior to disposal at an appropriate facility.

The staff from the Tidewater Regional Office thanks you for the opportunity to provide comments.

Sincerely,

Cindy Keltner
Environmental Specialist II
5636 Southern Blvd.
VA Beach, VA 23462
(757) 518-2167
Cindy.Keltner@deq.virginia.gov

Fisher, John (DEQ)

From: Johnson, Mike (MRC)
Sent: Tuesday, April 09, 2013 1:34 PM
To: Fisher, John (DEQ)
Subject: #13-060F

Good afternoon John,
I have reviewed the documents provided for the Consistency Determination for the Alternate Water Supply and Booster Station on Joint Base Langley/Eustis. The documents provided indicate that the proposed construction elements of the project will not impact state-owned subaqueous bottom and therefore a permit from the Virginia Marine Resources Commission will not be required.

Please be advised that the Commission, pursuant to Section 28.2-1200 et seq of the Code of Virginia, has jurisdiction over any encroachments in, on, or over the beds of the bays, ocean, rivers, streams, or creeks which are the property of the Commonwealth. If changes are made to the proposed construction activities and these activities impact areas under the jurisdiction of this agency then a permit will be required and a Joint Permit Application should be submitted detailing the impacts to state-owned subaqueous bottom.

Thank you for the opportunity to comment.

Mike Johnson
Habitat Management Division
VMRC
2600 Washington Ave.
Newport News, Va 23607
757-247-2255

Douglas W. Domenech
Secretary of Natural Resources

David A. Johnson
Director

RECEIVED
APR 29 2013
DEQ-Office of Environmental Impact Review

COMMONWEALTH of VIRGINIA

DEPARTMENT OF CONSERVATION AND RECREATION

203 Governor Street
Richmond, Virginia 23219-2010
(804) 786-1712

MEMORANDUM

DATE: April 24, 2013

TO: John Fisher, DEQ

FROM: Roberta Rhur, Environmental Impact Review Coordinator

SUBJECT: DEQ 13-060F, Dept of the Army – Alternate Water Supply System and Booster Station, City of Newport News

Division of Natural Heritage

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

Alternative 1: Shellabarger Drive

According to the information currently in our files, Hazel dodder (*Cuscuta coryli*, G5?/S2?/NL/NL) has been historically documented within the project site. Hazel dodder is a parasitic herb placed either under its own dodder family (Cuscutaceae) or within the morning glory (Convolvulaceae) family. It consists of an orange to yellow stem twining on a host plant which includes a variety of herbaceous and woody species (Weakley in prep.) Small, 4-5 parted, fleshy, white flowers form dense to loose clusters in mid to late summer. Found over much of the U.S. and Canada, hazel dodder is scattered around Virginia, with occurrences in the Coastal Plain, Ridge and Valley, and Northern Blue Ridge physiographic provinces. In Virginia it has been documented in highly variable, at least partially open, habitat including coastal marshes, dry greenstone glades in the Blue Ridge, and in dry forests over limestone in the Ridge and Valley. Threats include habitat destruction and herbicides. As some members of this genus can cause damage to cultivated plants, rare species of *Cuscuta* may be incidentally destroyed by efforts to protect crops (Cusick and Burns 1984). In order to accurately distinguish this rare dodder from more common species, surveys in Virginia need to be conducted during its blooming period, July-September.

To minimize adverse impacts to the aquatic ecosystem as a result of the proposed activities, DCR recommends the implementation of and strict adherence to applicable state and local erosion and sediment control/storm water management laws and regulations.

Alternative 2: Oakland Industrial Park

According to the information currently in our files, Hazel dodder has been historically documented downstream from the project site.

To minimize adverse impacts to the aquatic ecosystem as a result of the proposed activities, DCR recommends the implementation of and strict adherence to applicable state and local erosion and sediment control/storm water management laws and regulations.

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

New and updated information is continually added to Biotics. Please contact DCR for an update on this natural heritage information if a significant amount of time passes before it is utilized.

The Virginia Department of Game and Inland Fisheries (VDGIF) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from http://vafwis.org/fwis/ or contact Gladys Cason (804-367-0909 or Gladys.Cason@dgif.virginia.gov).

Division of Stormwater Management

Chesapeake Bay Local Assistance:
In the City of Newport News, the areas protected by the *Chesapeake Bay Preservation Act*, as locally implemented, require conformance with performance criteria. These areas include Resource Protection Areas (RPAs) and Resource Management Areas (RMAs) as designated by the local government. RPAs include tidal wetlands, certain non-tidal wetlands and tidal shores. RPAs also include a 100-foot vegetated buffer area located adjacent to and landward of these features and along both sides of any water body with perennial flow. RMAs, which require less stringent performance criteria, include one hundred year floodplains, highly erodible soils (including steep slopes), and a minimum 100-foot area landward of the inland boundary of the RPA.

Pursuant to the *Coastal Zone Management Act* (the Management Act) of 1972, as amended, Federal activities affecting Virginia's coastal resources or coastal uses must be consistent with the Virginia Coastal Zone Management Program (Section 307(c)(1) of the Management Act and 15 CFR Part 930, sub-part C of the *Federal Consistency Regulations*).

The Proposed Action includes installation of the following design features; meter vault, backflow preventer, water booster station, approximately 2,450 linear feet of buried 12"
pipe, and crush and run maintenance access road approximately 1,700 linear feet long and 12 feet wide. A secondary connection would provide redundant water service to account for potential future water outages, which would improve system reliability. In order to meet demands, construction shall be completed, with the alternate water supply system fully operational, no later than September 30, 2013. Limited clearing and land disturbance is proposed in areas that would be designated as RMA and RPA and subject to locally enforced CBPA regulations. These areas are subject to the general performance criteria of § 4 VAC 50-90-130 and must minimize land disturbance, preserve indigenous vegetation and

minimize impervious cover. If land disturbance is to exceed 2,500 square feet, the project must comply with the requirements of the *Virginia Erosion & Sediment Control Handbook*, Third Edition, 1992. Additionally, stormwater management criteria consistent with water quality protection provisions (§ 4 VAC 3-20-17 et. seq.) of the *Virginia Stormwater Management Regulations* (§ 4 VAC 3-20) shall be satisfied. The portions of the project within the RPA are also subject to the development criteria of § 4 VAC 50-90-140. Land disturbance, development or redevelopment activities within this area must be consistent with § 4 VAC 50-90-150 B 2.

The Chesapeake Bay Preservation Act and Regulations are incorporated in the Virginia Coastal Zone Management Program. Federal Consistency regulations implementing the Coastal Zone Management Act require that federal actions, and/or projects requiring federal approvals or assistance that may impact natural resources in a coastal zone, must be conducted in a manner consistent to the maximum extent practicable with the enforceable policies of a coastal state's federally approved coastal management program.

The 1998 *Federal Agencies' Chesapeake Ecosystem Unified Plan* requires the signatories to fully cooperate with local and state governments in carrying out voluntary and mandatory actions to comply with the management of stormwater. The signatories also committed to encouraging construction design that minimizes natural area loss on new and rehabilitated federal facilities, adopts low impact development and best management technologies for stormwater and erosion and sediment control, and reduces impervious surfaces. In addition, the *Chesapeake 2000* agreement committed the government agencies to a number of sound land use and stormwater quality controls. The signatories additionally committed the agencies to lead by example with respect to controlling nutrient, sediment and chemical contaminant runoff from government properties. In December 2001, the Executive Council of the Chesapeake Bay Program issued *Directive No. 01-1: Managing Storm Water on State, Federal and District-owned Lands and Facilities*, which includes specific commitments for the signatories to lead by example with respect to stormwater control.

Provided adherence to the above requirements, the proposed activity would be consistent with the *Chesapeake Bay Preservation Act* and Regulations.

Stormwater Management:
The applicant and their authorized agents conducting regulated land disturbing activities on private and public lands in the state must comply with the Virginia Erosion and Sediment Control Law and Regulations (VESCL&R), Virginia Stormwater Management Law and Regulations including coverage under the general permit for stormwater discharge from construction activities, and other applicable federal nonpoint source pollution mandates (e.g. Clean Water Act-Section 313, Federal Consistency under the Coastal Zone Management Act). Clearing and grading activities, installation of staging areas, parking lots, roads, buildings, utilities, borrow areas, soil stockpiles, and related land-disturbance activities that result in the land-disturbance of equal to or greater than 2,500 for lands within designated RPAs and RMAs or equal to or greater than 10,000 square feet for all other areas, would be regulated by VESCL&R. Accordingly, the applicant must prepare and implement erosion and sediment control (ESC) plan to ensure compliance with state law and regulations. The applicant is ultimately responsible for achieving project compliance through oversight of on site contractors, regular field inspection, prompt action against non-compliant sites, and other mechanisms consistent with agency policy. [Reference: VESCL §10.1-567;].

The operator or owner of construction activities involving land disturbing activities equal to or greater than one acre are required to register for coverage under the General Permit for Discharges of Stormwater from Construction Activities and develop a project specific stormwater pollution prevention plan (SWPPP). Construction activities requiring registration also includes the land-disturbance of less than

one acre of total land area that is part of a larger common plan of development or sale if the larger common plan of development will ultimately disturb equal to or greater than one acre. The SWPPP must be prepared prior to submission of the registration statement for coverage under the general permit and the SWPPP must address water quality and quantity in accordance with the Virginia Stormwater Management Program (VSMP) Permit Regulations. General information and registration forms for the General Permit are available on DCR's website at
http://www.dcr.virginia.gov/soil_and_water/index.shtml
[Reference: Virginia Stormwater Management Law Act §10.1-603.1 et seq.; VSMP Permit Regulations §4VAC-50 et seq.]

For lands that fall within Chesapeake Bay areas:
The operator or owner of construction activities involving land disturbing activities equal to or greater than 2,500 square feet in areas designated as subject to the Chesapeake Bay Preservation Area Designation and Management Regulations adopted pursuant to the Chesapeake Bay Preservation Act are required to register for coverage under the General Permit for Discharges of Stormwater from Construction Activities and develop a project specific stormwater pollution prevention plan (SWPPP). The SWPPP must be prepared prior to submission of the registration statement for coverage under the general permit and the SWPPP must address water quality and quantity in accordance with the Virginia Stormwater Management Program (VSMP) Permit Regulations. General information and registration forms for the General Permit are available on DCR's website at
http://www.dcr.virginia.gov/soil_and_water/index.shtml
[Reference: Virginia Stormwater Management Law Act §10.1-603.1 et seq.; VSMP Permit Regulations §4VAC-50 et seq.]

The remaining DCR divisions have no comments regarding the scope of this project. Thank you for the opportunity to comment.

Literature Cited

Cusick, A.W. and J. Burns. 1984. *Cuscuta coryli* Engelm.Hazel Dodder fact sheet. Ohio Department of Natural Resources, Division of Natural Areas and Preserves. Available at: http://www.dnr.state.oh.us/Portals/3/Abstracts/Abstract_pdf/C/Cuscuta_coryli.pdf

Weakley, A. In prep. Flora of the southern and mid-Atlantic states. Working draft of 15 May 2011. University of North Carolina Herbarium, North Carolina Botanical Garden, University of North Carolina at Chapel Hill, NC.

DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR PROGRAM COORDINATION

ENVIRONMENTAL REVIEW COMMENTS APPLICABLE TO AIR QUALITY

RECEIVED
APR 10 2013
DEQ-Office of Environmental Impact Review

TO: John E. Fisher **DEQ - OEIA PROJECT NUMBER: 13 – 060F**

PROJECT TYPE: ☐ STATE EA / EIR **X FEDERAL EA / EIS** ☐ SCC

X CONSISTENCY DETERMINATION

PROJECT TITLE: ALTERNATE WATER SUPPLY SYSTEM AND BOOSTER STATION

PROJECT SPONSOR: DOD / DEPARTMENT OF THE ARMY

PROJECT LOCATION: **X OZONE MAINTENANCE AND EMISSION CONTROL AREA FOR NOX & VOC**

REGULATORY REQUIREMENTSMAY BE APPLICABLE TO: **X CONSTRUCTION**
☐ OPERATION

STATE AIR POLLUTION CONTROL BOARD REGULATIONS THAT MAY APPLY:

1. ☐ 9 VAC 5-40-5200 C & 9 VAC 5-40-5220 E – STAGE I
2. ☐ 9 VAC 5-40-5200 C & 9 VAC 5-40-5220 F – STAGE II Vapor Recovery
3. ☐ 9 VAC 5-40-5490 et seq. – Asphalt Paving operations
4. **X 9 VAC 5-130 et seq. – Open Burning**
5. **X 9 VAC 5-50-60 et seq. Fugitive Dust Emissions**
6. ☐ 9 VAC 5-50-130 et seq. - Odorous Emissions; Applicable to_____
7. ☐ 9 VAC 5-50-160 et seq. – Standards of Performance for Toxic Pollutants
8. ☐ 9 VAC 5-50-400 Subpart_____, Standards of Performance for New Stationary Sources, designates standards of performance for the_____
9. ☐ 9 VAC 5-80-1100 et seq. of the regulations – Permits for Stationary Sources
10. ☐ 9 VAC 5-80-1700 et seq. Of the regulations – Major or Modified Sources located in PSD areas. This rule may be applicable to the _____
11. ☐ 9 VAC 5-80-2000 et seq. of the regulations – New and modified sources located in non-attainment areas
12. ☐ 9 VAC 5-80-800 et seq. Of the regulations – Operating Permits and exemptions. This rule may be applicable to _____

COMMENTS SPECIFIC TO THE PROJECT:

All precautions are necessary to restrict the emissions of volatile organic compounds (VOC) and oxides of nitrogen (NO_X). For any permit needs, our Tidewater regional Office may be consulted.

K. S. Narasimhan

(Kotur S. Narasimhan)
Office of Air Data Analysis **DATE: April 10, 2013**

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

MEMORANDUM

TO: John Fisher, Environmental Program Planner

FROM: Steve Coe, Division of Land Protection & Revitalization Review Coordinator

DATE: April 24, 2013

COPIES: Sanjay Thirunagari, Division of Land Protection & Revitalization Review Manager; file

SUBJECT: Environmental Impact Statement: Project #13-060F Alternate Water Supply System with Booster Station at Joint Base Langley-Eustis Newport News, VA 23604.

The Division of Land Protection & Revitalization (DLPR) has completed its review of the Environmental Review Request for the construction/implementation of an Alternate Water Supply System with Booster Station at Joint Base Langley-Eustis Newport News, VA 23604.

Solid and hazardous waste issues were generally addressed in the submittal, and the submittal indicated a search of solid and hazardous waste databases. The DEQ DLPR staff has reviewed the submittal, conducted a cursory database search for zip code 23604, and has the following comments concerning possible waste issues associated with the project:

RCRA sites: five

1) ID# VAR000005702 – ASF No 92, Bldg 2407 Felker Airfield, Ft Eustis, VA 23604. Contact: Michelle Brown at 804-233-2181.
2) ID# VAR000005694 – ECS No 93, Bldg 2505 Jackson Avenue, Fort Eustis, VA 23604. Contact Michelle Brown at 804-233-2181.
3) ID# VA0000076364 – O&K Escalators Inc., 182 Enterprise Drive, Newport News, VA 23604. Conact Patricia Honey at 804-888-6666.
4) ID# VA8213720321 – U.S. Army Garrison Fort Eustis, B1208 Taylor Road, Fort Eustis, VA 23604. Contact James McKown at 757-878-4123.
5) ID# VA3210000946 – U.S. E. L. Hamm & Assoc Ft Eustis, Trailer behind Bldg 1204, Fort Eustis, VA 23604. Contact Norman Giebink at 804-878-0977.

CERLCLA sites: one

ID# VA6210020321 – Fort Eustis (U.S. Army), Newport News, VA 23604. NPL Status: Final NPL.

Solid Waste sites: none

VRP sites: none

FUDs: one

Fort Eustis. FUDs # C03VA0029. FFID # VA9799F771.

Petroleum Release sites: three

1) ID# 19944333 – Fort Eustis, 1407 Washington Blvd, Fort Eustis, VA 23604. Event Date: 12/7/2006. Status: Closed.
2) ID# 19942759 – Fort Eustis, 1407 Washington Blvd, Fort Eustis, VA 23604. Event Date: 11/27/2006. Status: Closed.
3) ID# 19952220 – Fort Eustis, 1407 Washington Blvd, Fort Eustis, VA 23604. Event Date: 12/27/2006. Status: Closed.

Please note that the DEQ's petroleum contamination (PC) case files may identify petroleum releases that should be evaluated by the project engineer or manager to establish the exact location of the release and the nature and extent of the petroleum release and the potential to impact the proposed project. The facility representative should contact the DEQ's Tidewater Regional Office at 757-518-2000 (Tank Program) for further information and the administrative records of the PC cases which are determined to be in close proximity to the proposed project.

GENERAL COMMENTS

Soil, Sediment, and Waste Management

Any soil that is suspected of contamination or wastes that are generated must be tested and disposed of in accordance with applicable Federal, State, and local laws and regulations. Some of the applicable state laws and regulations are: Virginia Waste Management Act, Code of Virginia Section 10.1-1400 *et seq.*; Virginia Hazardous Waste Management Regulations (VHWMR) (9VAC 20-60); Virginia Solid Waste Management Regulations (VSWMR) (9VAC 20-81); Virginia Regulations for the Transportation of Hazardous Materials (9VAC 20-110). Some of the applicable Federal laws and regulations are: the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Section 6901 *et seq.*, and the applicable regulations contained in Title 40 of the Code of Federal Regulations; and the U.S. Department of Transportation Rules for Transportation of Hazardous Materials, 49 CFR Part 107.

Asbestos and/or Lead-based Paint

All structures being demolished/renovated/removed should be checked for asbestos-containing materials (ACM) and lead-based paint (LBP) prior to demolition. If ACM or LBP are found, in addition to the federal waste-related regulations mentioned above, State regulations 9VAC 20-81-620 for ACM and 9VAC 20-60-261 for LBP must be followed. For questions contact DEQ's Tidewater Regional Office, Lisa Silvia, at 757-518-2175.

Pollution Prevention – Reuse - Recycling

Please note that DEQ encourages all construction projects and facilities to implement pollution prevention principles, including the reduction, reuse, and recycling of all solid wastes generated. All generation of hazardous wastes should be minimized and handled appropriately.

If you have any questions or need further information, please contact Steve Coe at (804) 698-4029.

Environmental Impact Review – General Guidance for database searches

When the environmental impact report is written or compiled for specific sites, it should include an environmental investigation on and near the properties selected in order to identify any solid or hazardous waste sites or issues related to the (project area). The report author should analyze the data in the web-based Waste Division databases to determine if the project would affect or be affected by any sites identified in the databases. The databases include the Permitted Solid Waste Management Facilities, Virginia Environmental Geographic Information Systems (Solid Waste, Voluntary Remediation Program, and Petroleum Release sites), CERCLA Facilities, and Hazardous Waste Facilities databases.

The Permitted Solid Waste Management Facilities Database
A list of active solid waste facilities in Virginia.

CERCLA Facilities Database
A list of active and archived CERCLA (EPA Superfund Program) sites.

Hazardous Waste Facilities Database
A list of hazardous waste generators, hazardous waste transporters, and hazardous waste storage and disposal facilities. Data for the CERCLA Facilities and Hazardous Waste Facilities databases are periodically downloaded by the Waste Division from U.S. EPA's website.

Virginia Environmental Geographic Information Systems (VEGIS)
The "What's in My Backyard" application displays cross-media geographical features in proximity to a selected site/address for different facility search parameters.

Accessing the DEQ Databases:

The report author should access this information on the DEQ website at

http://www.deq.virginia.gov/Programs/LandProtectionRevitalization/ReportsPublications/OriginalReports.aspx.

Scroll down to the databases which are listed under **Real Estate Search Information** heading.

Initially, the ***solid waste information*** can be accessed by clicking on the Permitted Solid Waste Management Facilities link and opening the file. You can search by city/county or region (zip code) for active permitted waste facilities. (Note: A targeted solid waste facility search can be accomplished through the **VEGIS** link - see information below re: VRP search).

The ***Superfund information*** will be listed by clicking on the Search EPA's CERCLIS database tab and clicking on the **Search Superfund Site Information** button (blue box). On this form, enter either 1) the zip code for the project site, or, 2) the name of the city or county and select Virginia in the State drop down box. Click "Search" at the bottom of the form. A facilities list will be appear.

The ***hazardous waste*** information can be accessed by clicking on the Hazardous Waste Facilities link. Go to the Geography Search section and fill in the 1) zip code of the project, or 2) the name of the city or county and VA in the state block, and click on "Search". The hazardous waste facilities in the locality will be listed.

The ***Voluntary Remediation Program*** (VRP), **Solid Waste Facilities**, and **Petroleum Release Sites** GPS databases can be accessed from the www.deq.virginia.gov website by clicking on **VEGIS** link under the **Resources & Tools** category. Then click on the "What's in my backyard" in the **Mapping Applications** block to the left. On the web map page, click on the "Pick a Quick Search Here" drop down arrow, and select "Address Search". In the adjacent block enter the zip code or address for the project site. Click on "Search". On the map you will see a green "balloon" indicating the site.

On the map area click on the "Tools" drop down arrow, and the select "Identify". A normal search looks like this: In the "Radius" block, type in [.5], and in the adjacent block select [miles] from the drop down options. Click on the "Layer" drop down arrow, select "VRP Sites", and then click on the green balloon. All VRP sites within the indicated range will appear in the Map/Results block to the left. Clicking on the block by the identified site will result in a second green balloon on the map. With multiple sites identified by the search, you can select/unselect each site to visualize its location, or change the radius of the search as needed.

At this time you can also search for "Solid Waste" sites and "Petroleum Releases" information for the project area by selecting these topics from the "Layer" options and then clicking on the green balloon on the map after each selection.

These database searches will include most waste-related site information for each locality based upon the radius of the address selected (such as .5 miles, .25 miles, or .1 mile). In many cases, especially when the project is located in an urban area, the database output for that locality will be extensive. This information is important to identify possible environmental concerns that may impact a new project.

Fisher, John (DEQ)

From: Ewing, Amy (DGIF)
Sent: Wednesday, May 01, 2013 11:38 AM
To: Fisher, John (DEQ)
Cc: nhreview (DCR)
Subject: ESSLog# 33737_13-060F_Langley-Eustis Alternate Water Supply

We have reviewed the subject project that proposes to construct alternate water supply at Langley-Eustis in Newport News, VA.

According to our records, bald eagle nests and concentration zones have been documented from the project area. Based on the scope and location of the proposed work, we do not anticipate it to result in adverse impacts upon this species. We recommend coordination with the USFWS regarding possible impacts upon bald eagles.

Warwick River, Skiffes Creek and the James River have been designated Anadromous Fish Use Areas. Based on the scope and location of the proposed work, we do not anticipate it to result in adverse impacts upon these resources.

This project is located within 2 miles of a documented occurrence of a state or federal threatened or endangered plant or insect species and/or other Natural Heritage coordination species. Therefore, we recommend coordination with VDCR-DNH regarding the protection of these resources.

To minimize the adverse impacts of linear utility project development on wildlife resources, we offer the following general recommendations: avoid and minimize impacts to undisturbed forest, wetlands, and streams to the fullest extent practicable; maintain naturally vegetated buffers of at least 100 feet in width around wetlands and on both sides of perennial and intermittent streams, where practicable; conduct significant tree removal and ground clearing activities outside of the primary songbird nesting season of March 15 through August 15; and, implement and maintain appropriate erosion and sediment controls throughout project construction and site restoration. We understand that adherence to these general recommendations may be infeasible in some situations. We are happy to work with the applicant to develop project-specific measures as necessary to minimize project impacts upon the Commonwealth's wildlife resources.

Assuming adherence to erosion and sediment controls, we find this project consistent with the Fisheries Management Section of the CZMA.

Thanks,

Amy Ewing

Environmental Services Biologist | VA Dept. of Game and Inland Fisheries | 4010 West Broad St. Richmond, VA 23230 | 804-367-2211 | www.dgif.virginia.gov

Carl E. Garrison III
State Forester

COMMONWEALTH of VIRGINIA

DEPARTMENT OF FORESTRY
900 Natural Resources Drive, Suite 800
Charlottesville VA 22903
434.977.6555 ~ Fax: 434.296.2369
www.dof.virginia.gov

April 17, 2013

TO: John Fisher, VDEQ
FROM: Greg Evans, VDOF
SUBJECT: DEQ #13-060F – Joint Base Langley-Eustis Alternate Water Supply System and Booster Station

Virginia Department of Forestry Response to Environmental Impact Review Request

Thank you for the opportunity to comment on the Joint Base Langley-Eustis Alternate Water Supply System and Booster Station proposal on behalf of the Virginia Department of Forestry (DOF). The Department has the following comments:

1. The forestland on the proposed site consists of mature hardwood forest but the loss should be minimal. According to the EIR, approximately 0.81 acres of forested land would be disturbed. While the proposed water line will traverse and bisect contiguous forest, the stated cleared width for the pipeline corridor is only 20 feet and should not create an adverse impact on the health of the forest ecosystem. Further, the water line will be buried when completed and the land above it managed in a grass state.
2. Best management practices are identified that when implemented will ensure that no trees outside the intended area of disturbance will be removed.
3. Given the limited acreage of forest that would be disturbed. DOF does not request off-site mitigation.
4. DOF commends USAF policy stipulating that forest resources must be managed for long-term sustainability, and that management must be compatible with protecting federally listed threatened and endangered species, maintaining biodiversity, protecting the Chesapeake Bay watershed, and providing wildlife habitat enhancement and outdoor recreational activities. In addition, the forest management program must fully comply with all applicable federal laws, policies, and regulations pertaining to forest management.

Greg Evans
Voluntary Mitigation Program Manager
Forestland Conservation Division

Virginia Department of Forestry
900 Natural Resources Drive, Suite 800
Charlottesville, VA 22903
434-220-9035

Fisher, John (DEQ)

From: Albrecht, Edward (VDH)
Sent: Monday, April 22, 2013 10:28 AM
To: Fisher, John (DEQ)
Cc: Matthews, Barry (VDH)
Subject: DEQ Project #: 13-060F Alternate Water Supply System JBLE

DEQ Project #: 13-060F
Name: Alternate Water Supply System and Booster Station
Sponsor: DOD/Department of the Army
Location: Newport News

VDH – Office of Drinking Water has reviewed the above captioned project. Below are our comments as they relate to proximity to public drinking water sources (groundwater wells, springs and surface water intakes). Potential impacts to public water distribution systems or sanitary sewage collection systems must be verified by the local utility.

There are 2 groundwater wells located within a 1 mile radius: The City of Newport News has two groundwater wells, Well 1B is 1,723 feet away and Well 1A is located 1,832 feet away from the project site.

There are 2 surface water intakes in Zone 1 (within a 5 mile radius): The City of Newport News Skiffes Creek surface water intake is 1.5 located miles upgradient of the project site; The City of Newport News Lee Hall surface water intake is located 1.23 miles away from the project site.

Submit an application for a construction permit with the local Field Office.

Edward Albrecht
Virginia Department of Health,
Office of Drinking Water
109 Governor Street, Sixth Floor
Richmond, VA 23219
(P) 804-864-7495
Edward.Albrecht@vdh.virginia.gov

COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1700 NORTH MAIN STREET
SUFFOLK, VIRGINIA 23434

Gregory A. Whirley
Commissioner

April 24, 2013

MEMORANDUM

TO: John Fisher, Department of Environmental Quality

FROM: Eric L. Stringfield, Transportation Planning and Land Use Director

SUBJECT: Consistency Determination/Certification

PROJECT: DOD/Department of Army: Alternative Water Supply System and Booster Station

LOCATION: City of Newport News

CC: Elizabeth Jordan, Chip Ray & James Cromwell

This report was reviewed by the Hampton Roads Planning Office for impacts to existing and proposed transportation facilities in relationship to the proposed construction and operation of an alternative water supply system and booster station. This construction is for the Fort Eustis portion of the Joint Base Langley-Eustis, Fort Eustis (JBLE-FE).

There are several projects under design in VDOT's Six Year Plan and the Hampton Roads 2034 Long Range Plan that improves traffic flow in this area. They include:

- UPC 98812 – Route 60/143 Connector Study – PE only – James City County
- UPC 100200 – Skiffes Creek Connector Study – James City County
- UPC 13496 & 14598 - Route 60 Relocation – James City County & City of Newport News
- UPC 87201 – Skiffes Creek Bridge/Rte 60 Relocation – James City County
- UPC 57313 – Rte 64 Widening from 4-8 lanes –City of Newport News
- UPC 98570 – Fort Eustis Boulevard guardrail over Lee Hall Reservoir – City of Newport News
- UPC 91687 – Replace Rte 105 (Fort Eustis Blvd.) Bridge over CSX Railroad– City of Newport News
- UPC 14952 – Warwick Boulevard – Install cantilever flashing lights and gates – City of Newport News
- UPC100856 - Oakland Industrial Park sidewalk – City of Newport News

This report does not include a traffic analysis to validate traffic impacts. However, the anticipated traffic impact from the proposed redevelopment should be minimal and will not adversely impact traffic operations in this area. Therefore, it is the conclusion that this project will not have a negative impact on the transportation within the region.

If any additional information is required, notify Darryll D Lewis, P.E. at 757-925-1622 or darryll.lewis@vdot.virginia.gov.

dl

Fisher, John (DEQ)

From: Kirchen, Roger (DHR)
Sent: Monday, April 22, 2013 2:08 PM
To: Fisher, John (DEQ)
Subject: Alternative Water Supply System and Booster Station (DEQ #13-060F; DHR File No. 2013-0064)

Pursuant to Section 106 of the National Historic Preservation Act, DHR has been in direct consultation with the Army and Air Force regarding this project (see EA - Appendix A) and the parties have reached consensus that the Alternative Water Supply System and Booster Station project will result in no historic properties affected. DHR has no further comment at this time.

Roger

Roger W. Kirchen, Manager
Office of Review and Compliance
Division of Resource Services and Review
Department of Historic Resources
2801 Kensington Avenue
Richmond, VA 23221
phone: 804-482-6091 (NEW!)
fax: 804-367-2391
roger.kirchen@dhr.virginia.gov

HAMPTON ROADS PDC
PLANNING DISTRICT COMMISSION

April 29, 2013

Mr. John E. Fisher
Virginia Department of Environmental Quality
Office of Environmental Impact Review
629 East Main Street, Sixth Floor
Richmond, VA 23219

Re: DEQ #13-060F, Alternate Water Supply System and Booster Station (ENV: GEN)

Dear Mr. Fisher:

Pursuant to your request, the staff of the Hampton Roads Planning District Commission has reviewed the Federal Consistency Determination and Environmental Assessment for the following project, Alternate Water Supply System and Booster Station, at Joint Base Langley-Eustis, Fort Eustis, in the City of Newport News. We have consulted with City staff regarding this project.

Based on this review, the proposal appears to be consistent with local and regional plans and policies.

We appreciate the opportunity to review this project. If you have any questions, please do not hesitate to call.

Sincerely,

Dwight L. Farmer

Dwight L. Farmer
Executive Director/Secretary

BJM/jcc

Copy: Michael King, NN

Coastal Zone Management Act (Coastal Zone Management Act)
Consistency Determination

1. This document provides the Commonwealth of Virginia with the U.S. Army Fort Eustis portion of Joint Base Langley-Eustis (JBLE-FE), Consistency Determination under the Coastal Zone Management Act section 307©(1) [or (2)] and 15 CFR Part 930, sub-part C, for the proposed project of construction and operation of an alternate water supply system and booster station for the purposes of improving reliability of the water system in the instance of a break in the post's water main or maintenance on the Newport News supply line. This consistency determination assesses the construction aspects to determine consistency with the Virginia Coastal Resources Management Program. The Proposed Action consists of the following:

    a. Old Dominion Utilities Service (ODUS) proposes to install a new water supply point (hereinafter called the "Proposed Action") for the Fort Eustis portion of JBLE. Construction of this project would include activities such as excavation, site grading, trenching, and pipe installation.

    The Proposed Action includes the following design features:
    - Meter vault
    - Backflow preventer
    - Water booster station
    - Approximately 2,450 linear feet of buried 12" pipe
    - Crush and run maintenance access road; approximately 1,700 linear feet long and 12 feet wide

    JBLE-FE has experienced water outages as a result of past water main breaks and during required maintenance on the connecting Newport News water main. Construction of the alternate water supply system is needed to meet the water demand for JBLE-FE. A secondary connection would provide redundant water service to account for potential future water outages, which would improve system reliability.

Applicable Enforceable Policies	Federally Proposed Action's Effect
Fisheries Management - The program stresses the conservation and enhancement of finfish and shellfish resources and the promotion of commercial and recreational fisheries to maximize food production and recreational opportunities. This program is administered by the Marine Resources Commission (MRC) (Virginia Code §28.2-200 through §28.2-713) and the Department of Game and Inland Fisheries (DGIF) (Virginia Code §29.1-100 through §29.1-570). The State Tributyltin (TBT) Regulatory Program has been added to the Fisheries Management program. The General Assembly amended the Virginia Pesticide Use and Application Act as it related to the possession, sale, or use of marine antifoulant paints containing TBT. The use of TBT in boat paint constitutes a serious threat to important marine animal species. The TBT program monitors boating activities and boat painting activities to ensure compliance with TBT regulations promulgated pursuant to the amendment. The MRC, DGIF, and Virginia	**NO EFFECT:** The Proposed Action is restricted to upland areas or disturbed cantonment areas except as described in the Water Resource Section of the EA document. No watercraft operations or painting of watercraft is involved.

Department of Agriculture and Consumer Services share enforcement responsibilities (Virginia Code §3.1-249.59 through §3.1-249.62).	
Subaqueous Lands Management - The management program for subaqueous lands establishes conditions for granting or denying permits to use state-owned bottomlands based on considerations of potential effects on marine and fisheries resources, wetlands, adjacent or nearby properties, anticipated public and private benefits, and water quality standards established by the DEQ Water Division. The program is administered by the MRC (Virginia Code §28.2-1200 through §28.2-1213).	**NO EFFECT:** No subaqueous land use is proposed under this action.
Wetlands Management - The purpose of the wetlands management program is to preserve tidal wetlands, prevent their despoliation, and accommodate economic development in a manner consistent with wetlands preservation. The tidal wetlands program is administered by the MRC (Virginia Code §28.2-1301 through §28.2-1320). The Virginia Water Protection Permit program administered by the DEQ includes protection of wetlands -- both tidal and non-tidal. This program is authorized by Virginia Code § 62.1-44.15.5 and the Water Quality Certification requirements of §401 of the Clean Water Act of 1972.	**MINOR EFFECT:** The Proposed Action will impact approximately 0.003 acres of two small isolated Palustrine Emergent wetlands on private property and may require a Joint Permit Application be submitted to the regulatory agencies. No wetlands will be impacted on JBLE-FE. See figure 4 in attached EA document.
Dunes Management - Dune protection is carried out pursuant to the Coastal Primary Sand Dune Protection Act and is intended to prevent destruction or alteration of primary dunes. This program is administered by the Marine Resources Commission (Virginia Code §28.2-1400 through §28.2-1420).	**NO EFFECT:** No primary dunes exist in the project site which is primarily an upland area.
Non-point Source Pollution Control - Virginia's Erosion and Sediment Control Law requires soil-disturbing projects to be designed to reduce soil erosion and to decrease inputs of chemical nutrients and sediments to the Chesapeake Bay, its tributaries, and other rivers and waters of the Commonwealth. This program is administered by the Department of Conservation and Recreation (DCR) (Virginia Code §10.1-560 *et seq*.).	**MINOR EFFECT:** Construction impacts associated with the Proposed Action could have a short-term effect on water resources by increasing storm water runoff from the site and carrying sediment and contamination loads into nearby waters during heavy rain. Construction activities would comply with the *Virginia Erosion* and Sediment Control Regulations and the Virginia Stormwater Management Regulations to avoid or minimize erosion. See Water Resources Section of EA Document.
Point Source Pollution Control - The point source program is administered by the State Water Control Board pursuant to Virginia Code §62.1-44.15. Point source pollution control is accomplished through the implementation of the National Pollutant Discharge Elimination System (NPDES) permit	**NO EFFECT:** Construction activities such as fueling equipment or fluids leaked from equipment have the

program established pursuant to §402 of the federal Clean Water Act and administered in Virginia as the VPDES permit program. The Water Quality Certification requirements of §401 of the Clean Water Act of 1972 is administered under the Virginia Water Protection Permit program.	potential to occur and could result in groundwater contamination. BMP's would be used to prevent spills or leaks for vehicles, equipment, and containers. Additionally, Spills or discharges of fuel, hydraulics, or other hazardous materials would be reported immediately by calling Fire and Emergency Services and responded to in accordance with the Fort Eustis Integrated Contingency Plan and the Fort Eustis Spill Prevention, Control and Countermeasures Plan. See Water Resources Section of EA Document.
Shoreline Sanitation - The purpose of this program is to regulate the installation of septic tanks, set standards concerning soil types suitable for septic tanks, and specify minimum distances that tanks must be placed away from streams, rivers, and other waters of the Commonwealth. This program is administered by the Department of Health (Virginia Code §32.1-164 through §32.1-165).	**NO EFFECT:** No septic tanks will be constructed as part of the Proposed Action.
Air Pollution Control - The program implements the federal Clean Air Act to provide a legally enforceable State Implementation Plan for the attainment and maintenance of the National Ambient Air Quality Standards. This program is administered by the State Air Pollution Control Board (Virginia Code §10.1-1300 through 10.1-1320).	**NO EFFECT:** A Record of Non-Applicability (RONA) to the General Conformity Rule has been drafted and will be included with the EA document.
Coastal Lands Management is a state-local cooperative program administered by the DCR's Division of Stormwater Management – Local Implementation (previously the Division of Chesapeake Bay Local Assistance) and 88 localities in Tidewater, Virginia established pursuant to the Chesapeake Bay Preservation Act; Virginia Code §§ 10.1-2100 through 10.1-2114 and Chesapeake Bay Preservation Area Designation and Management Regulations; Virginia Administrative code 9 VAC10-20-10 *et seq*.	**MINOR EFFECT:** The Proposed Action would add approximately .52 acres of impervious surfaces within the limits of construction. Grassed swales would be utilized to address the additional impervious surface. Additionally, appropriate stormwater management and erosion and sediment control plans utilizing BMPs will be followed in compliance with State and Federal requirements. See Water Resources Section of EA documents.

Appendix F – U.S. Fish & Wildlife Project Review Package

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
6669 Short Lane
Gloucester, Virginia 23061

Date: March 12, 2013

Online Project Review Certification Letter

Project Name: ODUS Alternate Waterline

Dear Applicant:

Thank you for using the U.S. Fish and Wildlife Service (Service) Virginia Field Office online project review process. By printing this letter in conjunction with your project review package, you are certifying that you have completed the online project review process for the referenced project in accordance with all instructions provided, using the best available information to reach your conclusions. This letter, and the enclosed project review package, completes the review of your project in accordance with the Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884), as amended (ESA), and the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c, 54 Stat. 250), as amended (Eagle Act). This letter also provides information for your project review under the National Environmental Policy Act of 1969 (P.L. 91-190, 42 U.S.C. 4321-4347, 83 Stat. 852), as amended. A copy of this letter and the project review package must be submitted to this office for this certification to be valid. This letter and the project review package will be maintained in our records.

The species conclusions table in the enclosed project review package summarizes your ESA and Eagle Act conclusions. These conclusions resulted in "no effect" and/or "not likely to adversely affect" determinations for listed species and critical habitat and/or "no Eagle Act permit required" determinations for eagles regarding potential effects of your proposed project. We certify that the use of the online project review process in strict accordance with the instructions provided as documented in the enclosed project review package results in reaching the appropriate determinations. Therefore, we concur with the "no effect" and "not likely to adversely affect" determinations for listed species and critical habitat and "no Eagle Act permit required" determinations for eagles. Additional coordination with this office is not needed.

Candidate species are not legally protected pursuant to the ESA. However, the Service encourages consideration of these species by avoiding adverse impacts to them. Please contact this office for additional coordination if your project action area contains candidate species.

Should project plans change or if additional information on the distribution of listed species, critical habitat, or bald eagles becomes available, this determination may be reconsidered. This certification letter is valid for one year.

Information about the online project review process including instructions and use, species information, and other information regarding project reviews within Virginia is available at our website http://www.fws.gov/northeast/virginiafield/endspecies/project_reviews.html. If you have any questions, please contact Kimberly Smith of this office at (804) 693-6694, extension 124.

Sincerely,

/s/ Cynthia A. Schulz

Cindy Schulz
Supervisor
Virginia Field Office

Enclosures - project review package

Species Conclusions Table

Project Name: JBLE

Date: 3/12/2013

Species / Resource Name	Conclusion	ESA Section 7 / Eagle Act Determination	Notes / Documentation
Sensitive joint-vetch (*Aeschynomene virginica*)	no suitable habitat present	No effect	IPAC species information (Habitat Requirements) The project area is not in the proximity where it would be flooded twice daily
Bald Eagle	Unlikely to disturb Bald Eagle Nest Does not intersect with eagle concentration area	No Eagle Act permit required	There were no nests within 660 feet of the project. (the closest nest is approximately 6,800 feet from the project area)
Critical Habitat Buffer	no critical habitat present	No effect	

U.S. Fish and Wildlife Service

Natural Resources of Concern

This resource list is to be used for planning purposes only — it is not an official species list.

Endangered Species Act species list information for your project is available online and listed below for the following FWS Field Offices:

VIRGINIA ECOLOGICAL SERVICES FIELD OFFICE
6669 SHORT LANE
GLOUCESTER, VA 23061
(804) 693-6694
http://www.fws.gov/northeast/virginiafield/

Project Name:

JBLE

U.S. Fish and Wildlife Service

Natural Resources of Concern

Project Location Map:

Project Counties:

Newport News, VA

Geographic coordinates (Open Geospatial Consortium Well-Known Text, NAD83):

MULTIPOLYGON (((-76.583857 37.1756404, -76.5829729 37.1755788, -76.5840029 37.1711727, -76.5830588 37.1707282, -76.5821567 37.1694291, -76.5821138 37.1685383, -76.5832725 37.1687434, -76.5832296 37.1691897, -76.58353 37.1697369, -76.5844312 37.1701814, -76.5852037 37.1704875, -76.583857 37.1756404)))

Project Type:

Water Supply / Delivery

U.S. Fish and Wildlife Service

Natural Resources of Concern

Endangered Species Act Species List (USFWS Endangered Species Program).

There are a total of 1 threatened, endangered, or candidate species, and/or designated critical habitat on your species list. Species on this list are the species that may be affected by your project and could include species that exist in another geographic area. For example, certain fishes may appear on the species list because a project could cause downstream effects on the species. Please contact the designated FWS office if you have questions.

Species that may be affected by your project:

Flowering Plants	Status	Species Profile	Contact
Sensitive joint-vetch (*Aeschynomene virginica*)	Threatened	species info	Virginia Ecological Services Field Office

FWS National Wildlife Refuges (USFWS National Wildlife Refuges Program).

There are no refuges found within the vicinity of your project.

FWS Migratory Birds (USFWS Migratory Bird Program).

Most species of birds, including eagles and other raptors, are protected under the Migratory Bird Treaty Act (16 U.S.C. 703). Bald eagles and golden eagles receive additional protection under the Bald and Golden Eagle Protection Act (16 U.S.C. 668). The Service's Birds of Conservation Concern (2008) report identifies species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become listed under the Endangered Species Act as amended (16 U.S.C 1531 et seq.).

NWI Wetlands (USFWS National Wetlands Inventory).

The U.S. Fish and Wildlife Service is the principal Federal agency that provides information on the extent and status of wetlands in the U.S., via the National Wetlands Inventory Program (NWI). In addition to impacts to wetlands within your immediate project area, wetlands outside of your project area may need to be considered in any evaluation of project impacts, due to the hydrologic nature of wetlands (for example, project activities may affect local hydrology within, and outside of, your immediate project area). It may be helpful to refer to the USFWS National Wetland Inventory website. The designated FWS office can also assist you. Impacts to wetlands and other aquatic habitats from your project may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal Statutes. Project Proponents should discuss the relationship of these

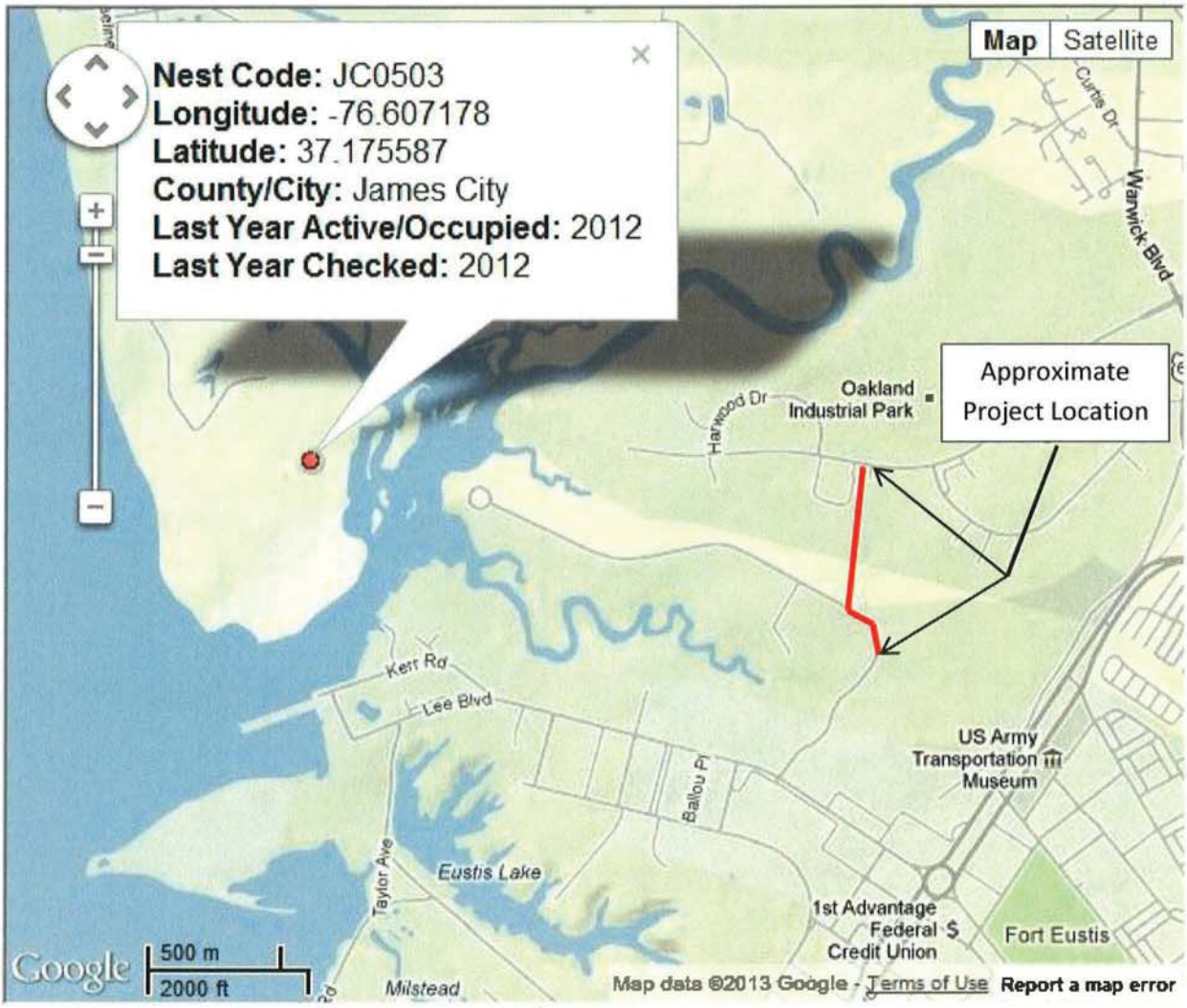
Natural Resources of Concern

requirements to their project with the Regulatory Program of the appropriate U.S. Army Corps of Engineers District.

The following wetlands intersect your project area:

Wetland Types	NWI Classification Code	Approximate Acres
Freshwater Forested/Shrub Wetland	PFO1R	2.636621
Freshwater Forested/Shrub Wetland	PFO1Eh	0.674905

Bald Eagle Nest



USFWS Bald Eagle Concentration Areas - Viginia

Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

U.S. Fish & Wildlife Service

Sensitive Joint-Vetch

Aeschynomene virginica

Description

The sensitive jointvetch s an annual legume native to the eastern United States. Populations currently exist in Maryland, New Jersey, North Carolina, and Virginia. The historical range for the species extended to Delaware and Pennsylvania. In Virginia, populations are found along the Potomac, Mattaponi, Pamunkey, Rappahannock, Chickahominy, and James Rivers and their tributaries. This plant usually attains a height of three to six feet in a single growing season, but may grow as tall as eight feet. The flowers are yellow, streaked with red and the fruit is a pod, turning dark brown when ripe.

Life History

The joint-vetch occurs in fresh to slightly brackish tidal river systems, within the intertidal zone where populations are flooded twice daily. It typically occurs at the outer fringe of marshes or shores; its presence in marsh interiors may be a result of nutrient deficiencies, ice scouring, or muskrat herbivory. The sensitive joint-vetch is found in localities where plant diversity is high and annual species are prevalent. Bare to sparsely vegetated substrates appear to be a habitat feature of critical importance for establishment and growth of this species. Plants flower from July through September and into October in some years. Fruits are produced from July through late October, concurrent with flowering.

Conservation

The sensitive jointvetch was federally listed as a threatened species on June 19, 1992. Threats to the species include sedimentation, competition from nonnative plant species, dams, dredging, filling, recreational activities, shoreline stabilization, shoreline structures, road and bridge construction, commercial and residential development, water withdrawal projects, water quality degradation, agricultural practices, introduced pest species, mining, timber harvest, over-visitation, declines in muskrat populations, rise in sea level (this may also be a result of natural cycles), and collection. Natural threats are often identified with disturbances, such as wave and ice action associated with severe storm events, competition, herbivory, channel migration, sea level rise and natural sedimentation processes. Adequate habitat conservation for this species will only be achieved through on-site protection of marshes supporting plant populations when coupled with protection of the natural ecological processes responsible for creating and maintaining habitat for the sensitive joint-vetch.

What you can do to help

Avoid the use of herbicides in or near waterways. If you are planning construction or stabilization activities along the shoreline in one of the counties indicated on the attached map, please contact the U.S. Fish and Wildlife Service.

References

Davison, S.E. and L.P. Bruderle. 1984. Element stewardship abstract for *Aeschynomene virginica* - sensitive joint vetch. The Nature Conservancy. Arlington, Virginia.

Hershner, C. and J.E. Perry. 1987. Population status of potentially threatened vascular plants from coastal plain tidal rivers in Virginia. College of William and Mary, Virginia Institute of Marine Science, Gloucester Point, Virginia.

©M. Rollins

Rouse, G.D. 1994. Sensitive jointvetch life history and habitat study, 1993 Field Season, Mattaponi and Rappahannock River systems, Virginia. Schnabel Environmental Services. Richmond, Virginia.

U.S. Fish and Wildlife Service. 1995. Sensitive joint-vetch *(Aeschynomene virginica)* recovery plan. Hadley, Massachusetts.

U.S. Fish and Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester, Virginia 23061
804/693 6694

Federal Relay Service
for the deaf and hard-of-hearing
1 800/877 8339

U.S. Fish & Wildlife Service
1 800/344 WILD
http://www.fws.gov

October 2010

Appendix G – Public Hearing Affidavit

COMMONWEALTH OF VIRGINIA
CITY OF NEWPORT NEWS

This day, personally appeared before me, George Hunt, and made oath as follows:

1. He is employed in the Office Services Department of the Daily Press, LLC; a newspaper publishing company in the City of Newport News, Virginia.

The attached advertisement was published for ***2*** insertion(s) in the *Daily Press,*

March 19, 2013 and ending on *March 20, 2013*

George Hunt

March 22, 2013
Date

Subscribed and sworn before me

This 22nd day of *March*, 2013.

My commission expires: December 31, 2016.

Yvette R. Causey
NOTARY PUBLIC

Registration Number: 7513218

YVETTE R. CAUSEY
NOTARY PUBLIC
REG. #7513218
MY COMMISSION EXPIRES
12/31/2016
COMMONWEALTH OF VIRGINIA

Legal Notice

PUBLIC NOTICE

Notice of Availability Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FNSI)

The U.S. Army has prepared a draft EA that considers the proposed construction and operation of an alternate water supply system and booster station at Joint Base Langley-Eustis, Fort Eustis. This draft EA has been prepared to evaluate the Proposed Action, the alternative sites for the Proposed Action and the No Action Alternative. Implementation of the Proposed Action is not expected to result in significant environmental impacts, indicating that a FNSI would be appropriate. An Environmental Impact Statement therefore, is not necessary to implement the Proposed Action in accordance with the National Environmental Policy Act. Copies of the draft EA and draft FNSI are available for review and comment online at http://www.peninsulawarrior.com or at the following Library Locations: Groninger Library BLDG 1313, Fort Eustis, VA 23604; Grissom Public Library, 366 DeShazor Drive, Newport News, VA 23606, and Christopher Newport University Library, 1 University Place Newport News, VA 23606. Comments on the draft EA and draft FNSI should be submitted to Mr. Timothy Christensen, Chief, Conservation Branch, Environmental Element, preferably via email at Timothy.P.Christensen.civ @ mail.mil or via mail to Whitman Requardt and Associates, LLP Attn: Nicholas Nies, 9030 Stony Point Parkway, Richmond, Virginia 23235. Requests for copies and/or comments may also be submitted by e-mail to Nicholas Nies at nnies@wralp.com. Comments should be submitted no later than 30 days from the publication of this notice.


JOINT
BASE
LANGLEY
EUSTIS