

**CLARKE COUNTY PLANNING COMMISSION  
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\* NOTE – Policy and Technical Issues Final Report document is not included within this meeting packet due to its large size and formatting.



# Clarke County Planning Commission

**AGENDA – Work Session**

**Tuesday, June 4, 2019 – 3:00PM**

**Berryville/Clarke County Government Center– A/B Meeting Room**

- 1. Approval of Work Session Agenda**
- 2. Review of Agenda Items for June 7, 2019 Business Meeting**
- 3. New Business Items**
  - A. Policy & Technical Issues Final Report, Zoning and Subdivision Ordinance Update Project
- 4. Old Business Items**
  - A. Zoning and Subdivision Ordinance Update Project Progress Report
- 5. Other Business**
- 6. Adjourn**



## Clarke County Planning Department

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**TO: Planning Commission, Board of Supervisors**

**FROM: Brandon Stidham, Planning Director**

**RE: Policy and Technical Issues Final Report  
Zoning and Subdivision Ordinance Update Project**

**DATE: May 28, 2019**

In conjunction with the Zoning and Subdivision Ordinance Update Project, the Planning Commission's Ordinances Committee and Staff recently completed work on Project Step #2, Discuss and Provide Formal Direction on Policy and Technical Issues. Enclosed you will find the Final Report for this critical project step which contains the final Staff Reports for each issue that was reviewed and copies of the minutes for each meeting at which the Committee discussed the issues. The individual Staff Reports contain the direction provided by the Committee to Staff on each issue along with cross-references to the applicable meeting minutes.

Staff has developed this Final Report to provide background information for the Planning Commission and Board of Supervisors as we prepare to review the final revised Zoning and Subdivision Ordinances in the coming months. Most of the Policy and Technical Issues addressed in this report describe the most significant changes that will be made in developing the revised Ordinances. It is Staff's hope that by providing you with this information in advance of reviewing the revised Ordinances, you will have the opportunity to ask questions and raise any concerns that you may have with the direction taken on the issues.

Staff is also working with the Committee to revise the project work plan and to develop a new timeline for completion – this will be provided to you in an upcoming meeting. If you have any questions, please do not hesitate to contact me.

## ZONING AND SUBDIVISION ORDINANCE UPDATE PROJECT PROGRESS REPORT (MAY 2019)

### **Work Plan Items Completed to Date:**

- Step 1 – Adopt Work Plan, Project Policies and Timeline
- Step 2 – Discuss and Provide Formal Direction on Policy Issues
- Step 3 – Approve Framework for Draft Ordinances.

### **Work Plan Items in Process:**

- Policy and Technical Issues Final Report. The Ordinances Committee and Staff completed the review of the final remaining policy issues at the Committee's April 30 meeting, marking completion of Step 2 in the project work plan. In June, Staff will present a final report to the full Planning Commission and Board of Supervisors containing the final staff reports on each policy and technical issue reviewed along with the minutes of every Ordinances Committee meeting at which the issues were discussed. The final report will provide the Commission and Board with a detailed summary of how these major issues will be addressed in the revised Zoning and Subdivision Ordinances. It will also give members an opportunity to ask questions or raise concerns to the Committee and Staff about the issues so they can be addressed as the final drafts of the Ordinances are being developed.
- Revised Work Plan. With the completion of Step 2 and work progressing on the drafting process, Staff is also developing a revised work plan and timeline for completion of the project. A revised draft of the work plan will be discussed with the Ordinances Committee at their next meeting on Friday, June 7.
- Step 4 -- Present Draft Ordinance Text by Chapter and by Subject. Staff's work on the initial draft Ordinances during this period is summarized as follows:
  - Staff recently finished work on the first complete draft of the Zoning Ordinance. We are in the process of reviewing, editing, and flagging any unresolved issues to develop a second draft of the Zoning Ordinance which we hope to have ready for the County Attorney's legal review by the first week in June.
  - Staff will also be working to complete the combined Definitions Article by the first week in June for the County Attorney's legal review.
  - Work has not begun on development of the first draft of the Subdivision Ordinance, however Staff anticipates it will take far less time to complete than the first draft of the Zoning Ordinance. We hope to have a complete draft of the Subdivision Ordinance ready for legal review by the first week in July.

**Upcoming Meetings Scheduled:**

- #25 – June 7, 2019 (immediately following Commission Work Session):
  - Review and discuss revised project work plan

**Other Staff Items in Process:**

- Initial development of the Guidance Manual outline



# Clarke County Planning Commission

AGENDA – Business Meeting

Friday, June 7, 2019 – 9:00AM

Berryville/Clarke County Government Center – Main Meeting Room

1. Approval of Agenda
2. Approval of Minutes
  - A. April 30, 2019 Work Session
  - B. May 3, 2019 Business Meeting

### Site Plan Review/Continued Public Hearing

3. **SP-18-02, Robert Claytor.** Request approval of a Site Plan Amendment to add a canopy and diesel pumps to the property identified as Tax Map #28-A-20G located at 8153 John Mosby Highway in the White Post Election District, zoned Highway Commercial (CH) and Historic Access Corridor Overlay District (HC).

### Board/Committee Reports

4. Board of Supervisors (Mary Daniel)
5. Board of Septic & Well Appeals (George Ohrstrom, II)
6. Board of Zoning Appeals (Anne Caldwell)
7. Historic Preservation Commission (Doug Kruhm)
8. Conservation Easement Authority (George Ohrstrom, II)
9. Broadband Implementation Committee (Mary Daniel)

### Other Business

### Adjourn

<b>UPCOMING MEETINGS:</b>
<b>Commission Work Session</b> Tuesday, July 9, 2019 (3:00PM)
<b>Commission Business Meeting</b> Friday, July 12, 2019 (9:00AM)

# Clarke County

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**PLANNING COMMISSION  
WORK SESSION MINUTES -- DRAFT  
TUESDAY, APRIL 30, 2019**



A work session of the Planning Commission of Clarke County, Virginia, was held at the Berryville/Clarke County Government Center, Berryville, Virginia, on Tuesday, April 30, 2019.

## **ATTENDANCE**

**Present:** Robina Bouffault; Randy Buckley; Anne Caldwell; Mary Daniel; Scott Kreider; Doug Kruhm; Frank Lee; Gwendolyn Malone; and George L. Ohrstrom, II (arrived late).

**Absent:** Bob Glover, Pete Maynard

**Staff Present:** Brandon Stidham, Planning Director; Ryan Fincham, Senior Planner/Zoning Administrator

## **CALLED TO ORDER**

Mr. Stidham called the meeting to order at 3:03PM.

## **APPROVAL OF WORK SESSION AGENDA**

Mr. Stidham stated that Chair Ohrstrom has not arrived yet but wanted to add a discussion item regarding a resolution on the Loudoun County Comprehensive Plan update, and he recommended adding this item under Other Business. Members agreed to the addition and approved the agenda by consensus.

## **REVIEW OF AGENDA ITEMS FOR MAY 3, 2019 BUSINESS MEETING**

### MS-19-01/MLSE-19-01, Ray M. Pennington, II

Mr. Fincham reviewed the Staff Report for this minor subdivision and maximum lot size exception application. He indicated that Bobby Boyce (Virginia Department of Transportation – VDOT) provided a comment letter expressing specific concerns with the application, and that Mr. Boyce and the applicant’s surveyor are currently working through these concerns. He noted that he forwarded an email to the members prior to the work session containing the surveyor’s responses to Mr. Boyce’s concerns. He described Mr. Boyce’s specific concerns and said that they mostly involve the existing private access easement entrance that would be used to serve the new lot. He also noted that all other agency concerns and review items have been addressed and hopes that VDOT’s concerns will be resolved in time for the Friday Business Meeting.

Ms. Caldwell asked about the applicant’s plan for the lot and Mr. Fincham replied that he will likely sell the new lot and build a house on the residual lot.

Chair Ohrstrom entered the meeting.

MS-19-02, Carl Thomas (applicant)/J.C. Hardesty (owner)

Mr. Fincham reviewed the Staff Report for this minor subdivision application. He described current nonconformities on the property and indicated that all agency comments and review issues have been addressed. Members noted that the property has several sinkholes and Ms. Caldwell asked if they are going to build a house on the property. Mr. Lee indicated that he did the soil work for the proposed drainfield and noted that resistivity testing was performed for both the drainfield and house site.

**OLD BUSINESS ITEMS**

Zoning and Subdivision Ordinance Update Project Progress Report

Mr. Stidham stated that the Ordinances Committee will be meeting immediately following the Work Session to discuss the last two remaining Policy Issues and how the final Policy and Technical Issues Report will be disseminated to the full Commission and Board of Supervisors. He also noted that Staff has completed the first complete rough draft of the revised Zoning Ordinance. Ms. Bouffault asked when Staff would be presenting the revised Ordinances to the Commission. Mr. Stidham replied that it is dependent upon the County Attorney's schedule as the drafts have to pass legal review before moving forward to the Commission.

**OTHER BUSINESS**

Discussion, Resolution Regarding Loudoun County 2019 Comprehensive Plan

Chair Ohrstrom provided an overview of this issue. He indicated that despite citizen support for maintaining current conservation measures in Loudoun's transition policy area, the draft 2019 Comprehensive Plan would overturn these policies and add a significant increase in the number of allowable residential units in this area. He said that the Commission may want to consider adoption of a draft resolution expressing concern with this change in land use policy and its potential adverse impacts on Clarke County. He added that in speaking with David Weiss (Chair, Board of Supervisors) about the resolution, Mr. Weiss did not think that the Board would be interested in considering such a resolution. Ms. Bouffault suggested having Piedmont Environmental Council (PEC) staff give a similar presentation to the Board as they did for the Commission in April. Ms. Caldwell asked Chair Ohrstrom if he knew how Loudoun's recent public hearings on the Comprehensive Plan went. Chair Ohrstrom replied that the comments were two to one against allowing more development but that an upcoming hearing may have more speakers in favor of development. He added that these are Board of Supervisors hearings and that the Board has received the final report but he did not know when they would vote on the revised Plan. Mr. Kruhm said that it would be a good idea to have established policies for dealing with neighboring counties. Vice-Chair Buckley said that he likes the resolution very much but that he is concerned with the Commission taking a formal position on a Loudoun County matter. Ms. Caldwell noted that she did not think Loudoun County would pay any attention to the resolution if the Commission adopts it. Ms. Daniel said that there is a difference between sending a formal resolution and sending a letter of concern, and she agreed with Vice-Chair Buckley's concerns that sending a formal resolution could have a negative effect. Mr. Kreider added that the increased residential development will have a significant impact on the number of cars coming through Clarke County on Route 7. Ms. Bouffault said that the Commission should do something and

could send concerns in the form of a letter signed by all of the Commissioners instead of a formal resolution. Mr. Lee added that he did not think that a resolution would be necessary but that a letter of concern is necessary. Chair Ohrstrom asked if the letter should come from the Commission or Board and Mr. Lee replied that it could come from both bodies. Chair Ohrstrom said that he would attempt to rewrite the resolution as a letter for the Commission's consideration on Friday. Ms. Daniel added that the letter should lead with then potential adverse effects on Clarke. Ms. Caldwell asked if the Commission and Board send separate letters. Chair Ohrstrom said that it would be up to the Board to decide whether to send their own letter. Mr. Stidham said that on Friday, the Commission would be voting on whether to authorize the Chair to send the letter in question on behalf of the Commission.

The meeting was adjourned by consensus at 3:41PM.

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George L. Ohrstrom, II (Chair)

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Brandon Stidham, Planning Director

# Clarke County

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**PLANNING COMMISSION - DRAFT**  
**BUSINESS MEETING MINUTES**  
**FRIDAY, MAY 3, 2019**

A Business Meeting of the Planning Commission of Clarke County, Virginia, was held at the Berryville/Clarke County Government Center, Berryville, Virginia, on Friday, May 3, 2019.

**Attendance**

**Present:** George L. Ohrstrom, II (Chair); Randy Buckley (Vice-Chair); Robina Bouffault; Anne Caldwell; Bob Glover; Scott Kreider; Doug Kruhm; Frank Lee; Gwendolyn Malone; and Pete Maynard.

**Absent:** Mary Daniel

**Staff Present:** Brandon Stidham, Planning Director; Ryan Fincham, Senior Planner/Zoning Administrator; and Debbie Bean, Recording Secretary.

**Called to Order**

Chair Ohrstrom called the meeting to order at 9:00 a.m.

**Approval of Agenda**

The Commission voted to approve the agenda.

**Yes:** Bouffault (moved), Buckley, Caldwell, Glover, Kreider, Kruhm (seconded), Lee, Malone, Maynard and Ohrstrom

**No:** No one

**Absent** Daniel

**Approval of Minutes**

The Commission voted to approve the Planning Commission Work Session Meeting minutes of April 5, 2019.

**Yes:** Bouffault (seconded), Buckley, Caldwell (moved), Glover, Kreider, Kruhm, Lee, Malone, Maynard and Ohrstrom

**No:** No one

**Absent:** Daniel

**New Commissioner Introduction – Pete Maynard**

Chair Ohrstrom introduced Pete Maynard as the new Commissioner replacing Cliff Nelson representing Russell Election District. Commissioner Maynard stated that he is pleased to be involved with the community by serving on the Planning Commission.

## **Minor Subdivision Review**

**MS-19-01/MLSE-19-01, Ray M. Pennington, III.** Request approval of a two lot Minor Subdivision and Maximum Lot Size Exception for the property identified as Tax Map #7-A-85D, located at 1014 Crums Church Road, Russell Election District, zoned Agricultural-Open Space-Conservation (AOC).

Mr. Fincham explained this Minor Subdivision. He stated that Benjamin Brashears, the land surveyor for this request, is present to answer any questions. He said that the property has one allowable maximum lot size exception for the existing pre-1980 house at 1014 Crums Church Road. He stated that the ingress/egress for Lot 1 is labeled on the plat as an existing gravel driveway. He said that Bobby Boyce with Virginia Department of Transportation (VDOT) provided an email on March 6, 2019 that an entrance could be obtained on the property for two lots. He stated that the results from the resistivity test were received from Dan Rom (Piedmont Geotechnical Inc.) and according to his review the site passes the resistivity test. He said that Virginia Department of Health has approved this request. He stated that Staff recommends approval of this request. After discussion with Staff and the Commission, Chair Ohrstrom called for a motion.

The Commission voted to approve this request.

**Yes:** Bouffault (moved), Buckley, Caldwell, Glover, Kreider, Kruhm, Lee, Malone (seconded), Maynard and Ohrstrom

**No:** No one

**Absent:** Daniel

**MS-19-02, Carl Thomas (Applicant) / JC Hardesty (Owner).** Request approval of a two lot Minor Subdivision for the property identified as Tax Map #7-A-120A, located at 537 Longmarsh Road, Russell Election District, zoned Agricultural-Open Space-Conservation (AOC).

Mr. Fincham explained this request. He stated that the owner is subdividing off the existing house from the farm. He said that the ingress/egress for Lot 1 is labeled on the plat and shown on the aerial view as an existing driveway. He stated that the Virginia Department of Transportation (VDOT) has reviewed and approved the location. He said that both lots have been field reviewed by the Virginia Health Department (VDH) and they are prepared to sign the final plats once an application for a certification letter is submitted to their office. He stated that the resistivity tests have been reviewed and approved by Mr. Rom for the proposed septic areas. He said that Staff recommends approval for this request. Commissioner Lee stated that he is recusing himself from this vote as he performed the soil work on this application. After discussion with Staff and the Commission, Chair Ohrstrom called for a motion.

The Commission voted to approve this request.

**Yes:** Bouffault (moved), Buckley (seconded), Caldwell, Glover, Kreider, Kruhm, Malone, Maynard and Ohrstrom

**No:** No one

**Abstain:** Lee

**Absent:** Daniel

## **Board/Committee Reports**

### **Board of Supervisors (Mary Daniel)**

Nothing to report.

### **Board of Septic & Well Appeals (George Ohrstrom, II)**

Nothing to report.

### **Board of Zoning Appeals (Anne Caldwell)**

Nothing to report.

### **Historic Preservation Commission (Doug Kruhm)**

Mr. Stidham stated that the annual awards luncheon is scheduled for May 15<sup>th</sup> at Camino Real.

### **Conservation Easement Authority (George Ohrstrom, II)**

Chair Ohrstrom stated that Conservation Easement Authority (CEA) closed on the ALE (Agriculture Land Easement). He said that Alison Teetor does incredible work to get everything done. He said that the CEA continues to look for as many lots as we can.

### **Broadband Implementation Committee (Mary Daniel)**

Mr. Stidham stated that a meeting is scheduled for May 14th at 2:00 p.m. with representatives from Rappahannock Electric Cooperative (REC), specifically the folks that are in charge of broadband development to find out what their plans are for broadband in the County. He said that Central Virginia Electric Cooperative (CVEC) has created an affiliate company called Firefly. He stated that this company is doing broadband fiber to the home in Central Virginia. He said that they are rolling it out currently in Appomattox and Nelson Counties. He stated that we want to find out if REC has the same types of plans in the works and if they do we want to see how we can get ahead of the line.

## **Other Business**

### **Update on SP-18-02, Robert Claytor**

Mr. Fincham stated that next month the Site Plan for Robert Claytor might be on the agenda.

### **Letter of concern regarding Loudoun County 2019 Comprehensive Plan**

Mr. Stidham told the Commission that a copy of a letter of concern regarding Loudoun County 2019 Comprehensive Plan has been provided to you on yellow paper for your review. He said that the Commission discussed this concern at the Work Session Meeting on April 30, 2019. He said that a vote needs to be taken as to whether to send this letter to the Loudoun County Chair of the Board of Supervisors. After discussion with Staff and the Commission, Chair Ohrstrom called for a motion.

The Commission voted to authorize the Chair to send the letter on behalf of the Commission.

**Yes:** Bouffault (seconded), Buckley, Caldwell (moved), Glover, Lee, Kreider, Kruhm, Malone, Maynard and Ohrstrom

**No:** No one

**Absent:** Daniel

**Adjourn**

On motion by Commissioner Malone and seconded by Commissioner Kruhm the meeting was adjourned at 9: 22 a.m.

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George L. Ohrstrom, II, Chair

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Debbie Bean, Recording Secretary

**SITE PLAN AMENDMENT (SP-18-02)**

**Robert Claytor**

**June 7, 2019 Planning Commission Meeting – PUBLIC HEARING**

**STAFF REPORT – Department of Planning**

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The purpose of this staff report is to provide information to the Planning Commission and Board of Supervisors to assist them in reviewing this proposed site plan amendment. It may be useful to members of the general public interested in this proposed amendment.  
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**Case Summary**

**Applicant(s):**

Robert Claytor

**Location:**

- 8153 John Mosby Highway, Boyce, VA 22620
- Tax Map #28-A-20G
- White Post Election District (Bouffault, Buckley – Planning Commission; McKay - Board of Supervisors)

**Parcel Size:**

3.9651 acres (after Boundary Line Adjustment and Merger)

**Note:**

Tax Map 28-A-20G “Lot 6” = 1.2683 acres

(Tax Map 20G will become part of Tax Map 20B after Merger)

Tax Map 28-A-20B “Lot 1” = 2.2442 acres (Tax Map 20B will be 3.9651 acres after Merger and BLA with Tax Map 20F “Lot 5”)

**Zoning:**

Highway Commercial (CH) & Historic Access Corridor Overlay District (HC)

**Request:**

Request approval of a Site Plan Amendment to add a canopy and diesel pumps to the property identified as Tax Map #28-A-20G located in the White Post Election District zoned Highway Commercial (CH).

**Case Update:**

The Applicant has deferred this request one month at a time since their first deferral on November 1, 2018. The Applicant and their engineers have been working directly with VDOT and DEQ the last several months to satisfy their requirements having meetings and several rounds of plan revisions generated and reviewed. The Applicant recently sent response letters to Hurt & Proffitt and to the Clarke County Sanitary Authority as well. Staff awaits approvals or comments from multiple review agencies at this time. Staff has not received a deferral notification from the Applicant for the June 7, 2019 meeting as of the drafting of this report. Please see updates in each section below.

Water and Sewer:

**Update:** Greenway Engineering provided a letter on May 24, 2019 in response to the Clarke County Sanitary Authority (CCSA) comment letter dated November 9, 2018 requesting site plan revisions.

- Staff awaits an approval or comments from the CCSA.

Location and Access:

**Update:** VDOT met with Greenway Engineering staff again in April to finalize the site plan. The issues addressed were truck turning radius adjustments needed to prevent contact with curbs and other vehicles, traffic flow and patterns established to prevent trucks from entering and exiting the facility in ways encouraging U-Turns on VDOT roads, and a drainage feature relocation to prevent damage to the feature. VDOT staff issued an approval letter on April 26, 2019 “with a few required changes”. Greenway Engineering provided a revised set of plans and a response letter to VDOT on May 20, 2019.

- Staff awaits an approval or comments from VDOT.

VDOT staff indicated to Staff that the stormwater issues regarding the VDOT stormwater pond at the park and ride property was eliminated for this request through arrangements made by the Applicant and approved by DEQ to provide onsite stormwater compliance. VDOT indicated that any additional development of the other lots in the area after this addition of diesel pumps to an existing facility would require a VDOT agreement for use of their stormwater pond or the allowance of piping through their property.

Erosion, Sediment and Stormwater:

**Update:** Greenway Engineering provided a letter on May 23, 2019 in response to the Hurt & Proffitt comment letter dated October 26, 2018 requiring site plan revisions.

- Staff awaits an approval or comments from Hurt & Proffitt.

**Update:** Greenway Engineering provided a letter on May 20, 2019 in response to the DEQ comment letter dated May 10, 2019 requiring stormwater plan revisions.

- Staff awaits approval from DEQ to be provided by the Applicant.

Lighting and Signage:

**Update:** A photometric lighting plan has been revised to be in compliance with the Ordinance according to Greenway Engineering. Staff will confirm compliance with Hurt & Proffitt.

**Recommendation**

The 60-day time period required for Planning Commission action was paused when the Applicant voluntarily deferred action on the request on November 1, 2018 (Day 55). The Applicant has deferred each meeting since that date. If the Applicant does not defer for the June meeting, the Planning Commission must take action on the request (approve or deny). Staff recommends denial of the application pending VDOT, DEQ, CCSA, and Hurt & Proffitt final approvals or comments. All referenced agencies have indicated to Staff that comment or approval letters could be issued next week, which could alter Staff’s recommendation.

**History:**

**April 12, 2018**

Pre-Application meeting held with Planning Staff.

<b>August 2, 2018</b>	Site Plan Amendment Application filed by the applicant.
<b>September 7, 2018</b>	Placed on the Commission's meeting agenda to schedule Public Hearing.
<b>October 5, 2018</b>	The Planning Commission voted 8-0 (Caldwell, Kruhm and Malone were absent) to defer action on the request and continue the public hearing for one month to the November 2, 2018 meeting.
<b>November 2, 2018</b>	The Applicant voluntarily deferred the request for one month to the December 7, 2018 meeting.
<b>December 7, 2018</b>	The Applicant voluntarily deferred the request for one month to the January 4, 2019 meeting.
<b>January 4, 2019</b>	The Applicant voluntarily deferred the request for one month to the February 1, 2019 meeting.
<b>February 1, 2019</b>	The Applicant voluntarily deferred the request for one month to the March 1, 2019 meeting.
<b>March 1, 2019</b>	The Applicant voluntarily deferred the request for one month to the April 5, 2019 meeting.
<b>April 5, 2019</b>	The Applicant voluntarily deferred the request for one month to the May 3, 2019 meeting.
<b>May 3, 2019</b>	The Applicant voluntarily deferred the request for one month to the June 7, 2019 meeting.
<b>June 7, 2019</b>	Placed on the Commission's meeting agenda for continued advertised public hearing.



GENERAL NOTES	
1. Greenway Engineering, Inc. (GE) issued this plan set based on project criteria dictated by the client and municipal codes. This plan set is not considered complete or appropriate for construction until ALL necessary agencies have given approval AND this plan set is signed and sealed by a licensed professional. Any work, planning, scheduling, material purchases and/or construction prior to approvals and licensed professional sealing will be performed at the risk of the personnel authorizing work. GE shall be held harmless from and costs, time delay and/or material changes incurred on work started before this plan set receives approvals and seals.	
2. Methods and materials used in the construction of the improvements herein shall conform to current County Construction Standards and Specifications and/or current VDOT Standards and Specifications.	
3. The Engineer shall not have control over or charge of and shall not be responsible for construction means, methods, techniques, sequences or procedures nor for safety precautions and programs in connection with work shown on these plans. The Engineer is not responsible for the contractor's schedules or failure to carry out the work. The Engineer is not responsible for acts of omissions of the contractor, subcontractor, or their agents or employees, or any other person performing portions of the work.	
4. The Contractor, Owner or Developer shall be responsible for securing any third party inspection/testing service to insure construction compliance with these plans and specifications. It is Greenway Engineering's recommendation that a third party inspection/testing service be employed to ensure that project is completed and materials installed meet the details and specifications in these plans.	
5. The location of existing utilities shown in these plans are taken from existing records. It shall be the contractor's responsibility to verify the exact horizontal and vertical location of all existing utilities as needed prior to construction. The contractor shall be responsible for the digging of all test holes that may be required, whether recommended or not by these plans, to determine the exact location and elevation of existing utilities. If any conflicts arising from this existing utility verification or if during the course of construction, any object of an unusual nature is encountered, the contractor shall cease work in that area and immediately notify Greenway Engineering at (540) 662-4185 and/or the proper authority. Greenway Engineering or any engineer associated with these plans shall not be responsible or liable for any construction cost that may be associated with the installation or reinstatement any utility or other improvements if not notified of any discrepancies between actual field conditions and the approved plan.	
6. The approval of these plans in no way relieve the developer, the contractor, or their agents of any legal responsibility which may be required by the code of Virginia or any other ordinance enacted by the County nor does it guarantee the issuance of any required permit by the County, VDOT or any other Agency.	
7. An approved set of plans and all applicable permits must be available at the construction site at all times during construction. A representative of the developer must be available at all times.	
8. Prior to the initiation of any land disturbing activities the Developer, the Contractor or the Responsible Land Disturber shall obtain a Land Disturbance Permit from Clarke County and DEQ will be the Issuing agent for the Construction General Permit. The Contractor, Developer or his agent shall be responsible for obtaining a Construction General Permit and shall be responsible for the registration of the construction site as required by law. They shall also be responsible for obtaining and maintaining on site a Stormwater Pollution Prevention Plan (SWPPP). The approval of these plans in no way relieves the developer or his agent of the responsibilities contained in the Virginia Erosion and Sediment Control Handbook.	
9. The Developer or his agent shall be responsible for obtaining any required permits from the Virginia Department of Environmental Quality (DEQ) or the United States Army Corp of Engineers for any plan wetland disturbance as shown on these plans. They shall also be responsible the identification and delineation of any wetlands that may be present on the construction site.	
10. The contractor shall provide adequate means of cleaning mud from trucks and/or other equipment prior to entering public streets, and it is the contractor's responsibility to clean streets, alley ways, and to take whatever measures are necessary to insure that public streets are maintained in a clean, mud and dust free condition at all times.	
11. A permit must be obtained from the Office of the Resident Engineer, Virginia Department of Transportation (VDOT) and Clarke County prior to any construction activities within existing State right-of-way.	
12. The developer will be responsible for any damage to the existing streets and utilities which occurs as a result of his construction project within or contiguous to the existing right-of-way.	
13. Warning signs, markers, barricades or flagmen shall be in accordance with the State and Federal Manual on Uniform Traffic Control Devices (MUTCD).	
14. The exact location of all guard rails and paved ditches will be determined by VDOT personnel. "A joint inspection will be held with the Developer, County Representatives, and Representatives of the Virginia Department of Transportation (VDOT) to determine if and where guard rail and/or paved ditches will be needed. The developer will be responsible for providing guardrail and paved ditches as determined by this joint inspection." Refer to Virginia Department of Transportation (VDOT) Guard Rail and Paved Ditch Specifications.	
15. All unsuitable material shall be removed from the construction limits of the site plan before placing embankment.	
16. All pavement sections shown on these approved plans are based on a minimum CBR value of 6 and are for preliminary design only. Final pavement design shall be based upon actual field tested CBR values. The Contractor or Developer shall be responsible for field tests per VDOT standards to obtain actual CBR values for final design. Final pavement designs will be approved by VDOT and/or the Owner/Developer, which ever applicable, prior to installation.	
17. All springs shall be capped and piped to the nearest storm sewer manholes or curb inlet. The pipe shall be minimum 6" diameter and conform to VDOT standard SB-1.	
18. When grading is proposed within easements of utilities, letters of permission from all involved companies must be provided to the County Building Department prior to issuance of grading and/or site development permits.	
19. Notification shall be given to the appropriate utility company prior to construction of water and/or sanitary sewer lines. Information should also be obtained from the appropriate authority concerning permits, cut sheets, and connections to existing lines.	
20. The Developer and/or Contractor shall be responsible to supply all utility companies with copies of the approved plans and advise them that all grading shall conform to the approved plans, and further that the utility companies shall be responsible for horning these plans and the finished grades in the installation of their utility lines.	
21. All utilities to be located underground.	
22. The developer will be responsible for the relocation of any utilities which is required as a result of his project. The relocation should be done prior to construction.	
23. All stormwater piping and structures shown on these plans are only accurate to the inlet or manhole locations as shown hereon. Detail design of stormwater structures were not provided to Greenway Engineering. Actual pipe alignments will be based upon developed structural shop drawings as provided by the manufacturer. Contractor shall make adjustments to pipe alignments base on provided shop drawings. Greenway Engineering will not be held responsible or liable for any discrepancies or changes caused by the structural design. Contractor may submit shop drawings to Greenway Engineering for review and approval at contractor's expense. Shop drawings will be reviewed for compliance with design plans. The Owner or Developer will be responsible for any redesign as a result of structural shop drawing design.	
24. Controlled fills shall be compacted to 95% of maximum density as determined by method "A" per standard proctor AASHTO-T99, ASTM-D698, or VTM-1 as applicable. Density shall be certified by a registered professional engineer and results submitted to Clarke County prior to pavement construction. If a geotechnical report has been prepared, it should supersede the requirements in this note.	
25. Refer to Geotechnical Engineer for methods, materials and details for construction of all earthwork activities.	
26. Any retaining wall 2 ft. or greater in height shall require the issuance of a separate building permit.	
27. Construction debris shall be containerized in accordance with the Virginia Litter Control Act; no less than one litter receptacle shall be provided at the construction site.	
28. These plans identify the location of all known gravesites. Gravesites shown on this plan will be protected in accordance with state law. In the event gravesites are discovered during construction, the owner and engineer must be notified immediately.	
29. Individual sign permits will be required from the Zoning Office for all free standing and/or facade signs prior to erecting the sign and may require a separate building permit.	

VDOT GENERAL NOTES				
V1. All work on this project shall conform to the current editions of and latest revisions to the Virginia Department of Transportation (VDOT) Road and Bridge Specifications and Standards, the Virginia Erosion and Sediment Control Regulations, and any other applicable state, federal or local regulations. In case of a discrepancy or conflict between the Standards or Specifications and Regulations, the most stringent shall govern.				
V2. All construction shall comply with the latest U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), and Virginia Occupational Safety & Health (VOSH) Rules and Regulations.				
V3. When working within VDOT right-of-way, all traffic control, whether permanent or temporary, shall be in accordance with the current edition of VDOT's Work Area Protection Manual. A transportation management plan needs to be submitted for approval and land use permit issued prior to any execution of work within the VDOT right-of-way.				
V4. The developer shall be responsible for relocating, at his expense, any and all utilities, including traffic signal poles, junction boxes, controllers, etc., owned by VDOT or private / public utility companies. It is the sole responsibility of the developer to locate and identify utility facilities or items that may be in conflict with the proposed construction activity. VDOT approval of these plans does not indemnify the developer from this responsibility.				
V5. Design features relating to field construction, regulations, and control or safety of traffic may be subject to change as deemed necessary by VDOT. Any additional expense incurred as a result of any field revision shall be the responsibility of the developer.				
V6. If required by the local VDOT Land Development Office, a pre-construction conference shall be arranged and held by the engineer and/or developer with the attendance of the contractor (s), various County agencies, utility companies and VDOT prior to initiation of work.				
V7. The contractor shall notify the local VDOT Land Development Office when work is to begin or cease for any undetermined length of time. VDOT requires and shall receive 48 hours advance notice prior to any required or requested inspection.				
V8. The contractor shall notify the Traffic Operations Center at (540) 332-9500 for any traffic control plan that impacts a VDOT maintained Interstate or Primary roadway to provide notification of the installation and removal of the work zone.				
V9. The contractor shall be responsible for maintaining a VDOT permitted temporary construction entrance(s) in accordance with Section 3.02 of the Virginia Erosion and Sediment Control Handbook. Furthermore, access to other properties affected by this project shall be maintained through construction.				
V10. Contractor shall ensure adequate drainage is achieved and maintained on the site during and at the end of construction.				
V11. All water and sewer lines within existing or proposed VDOT right-of-way shall have a minimum thirty-six (36) inches cover and when possible shall be installed under roadway drainage facilities at conflict points.				
V12. Any unusual subsurface conditions (e.g., unsuitable soils, springs, sinkholes, voids, caves, etc.) encountered during the course of construction shall be immediately brought to the attention of the engineer and VDOT. Work shall cease in that vicinity until an adequate design can be determined by the engineer and approved by VDOT.				
V13. All fill areas, borrow material and undercut areas shall be inspected and approved by a VDOT representative prior to placement of fill. A VDOT representative shall be present to insure the soil sample(s) obtained for CBR's is representative of the location. When soil samples are submitted to private laboratories for testing, the samples shall be clearly identified and labeled as belonging to a project to be accepted by VDOT and that testing shall be performed in accordance with all applicable VDOT standards and procedures.				
V14. All roadway fill, base, subgrade material, and backfill in utility/storm sewer trenches shall be compacted in accordance with the lift thicknesses, density and moisture requirements as specified in the current VDOT Road and Bridge Specifications. Certified copies of test reports shall be submitted to VDOT daily, unless specified otherwise.				
V15. VDOT Standard CD and UD underdrains shall be installed where indicated on these plans and/or as specified by VDOT.				
V16. A post installation visual/video camera inspection shall be conducted by the Contractor on all pipes identified on the plans as storm sewer pipe and a select number of pipe culverts. For pipe culverts, a minimum of one pipe installation for each size of each material type will be inspected or ten percent of the total amount for each size and material type summarized. All pipe installations on the plans not identified as storm sewer pipe shall be considered as culvert pipe for inspection purposes. Additional testing may be required as directed by the Area Land Use Engineer or their representative.				
V17. The installation of any entrances and mailboxes within any dedicated street right-of-way shall meet VDOT minimum design standards and is the responsibility of the developer.				
V18. Prior to VDOT acceptance of any streets, all required street signage and/or pavement markings shall be installed by the developer in accordance with the Manual On Uniform Traffic Control Devices.				
V19. The developer shall provide the VDOT Land Development Office with a list of all material sources prior to the start of construction. Copies of all invoices for materials utilized within any dedicated street right-of-way must be provided to the local VDOT Land Development Office prior to acceptance of the work. Unit and total prices may be obscured.				
V20. Aggregate base and subbase materials shall be placed on subgrade by means of a mechanical spreader. Density will be determined using the density control strip in accordance with Section 304 of the VDOT Road and Bridge Specifications and VTM-10. A certified compaction technician shall perform these tests. Certified copies of test reports shall be submitted to VDOT daily, unless specified otherwise. In addition to checking stone depths, a VDOT representative shall be notified and given the opportunity to be present during the construction and testing of the density control strip.				
V21. Asphalt concrete pavements shall be placed in accordance with Section 315 of the VDOT Road and Bridge Specifications. Density shall be determined using the density control strip as specified in Section 315 and VTM-76. A certified compaction technician shall perform these tests. Certified copies of test reports shall be submitted to VDOT daily, unless specified otherwise. A VDOT representative shall be notified and given the opportunity to be present during the construction and testing of the control strip.				
V22. In accordance with Section 302.03, the foundations for pipe culverts thirty-six (36) inches and larger shall be explored below the bottom of the excavation to determine the type and condition of the foundation. The contractor shall report findings of foundation exploration to the engineer and VDOT for approval prior to placing pipe. Foundation designs shall comply with VDOT Road and Bridge Standard PB-1. Where soft, yielding, or otherwise unsuitable foundation is encountered, the foundation design and/or need for foundation stabilization shall be determined by the engineer and approved by VDOT.				
V23. VDOT Standard Guardrail shall be installed where warranted and/or as proposed on these plans in accordance with VDOT's installation criteria. Final approval of the guardrail layout to be given by VDOT after grading is mostly complete.				
V24. Approval of these plans shall expire five (5) years from the date of the approval letter.				
V25. VDOT Standard CG-12 Curb Ramps shall be installed where indicated on these plans and/or as specified by VDOT.				
V26. The foundations for all box culverts shall be investigated by means of exploratory borings advanced below proposed foundation elevation to determine the type and condition of the foundation. The contractor shall submit copies of borehole logs and report findings of foundation exploration to the engineer and VDOT for approval prior to constructing box. Foundation designs shall comply with VDOT Road and Bridge Standard PB-1. Contrary to the Standard, where rock is encountered and cast-in-place box is proposed, the thickness of bedding shall be six (6) inches. Where soft, yielding, or otherwise unsuitable foundation is encountered, the foundation design and/or need for foundation stabilization shall be determined by the engineer and approved by VDOT.				

TRIP GENERATION DATA				
CLASS	USE	GROSS SF	* TRIP RATE	PEAK / HOUR
853	CONVENIENCE MARKET WITH GAS GASOLINE PUMPS	6500 GFA	62.57 PM PM PEAK	203 IN PM 203 OUT PM
TOTAL			406 PM PEAK - HOUR	

\* TAKEN FROM ITE TRIP GENERATION 9TH EDITION

PROJECT NOTES	
<p><b>FLOOD PLAIN NOTES</b></p> <p>1. This site is outside of a floodplain and is located in Zone X (Area of Minimal Flood Hazard) per FEMA FIRM (map number 51043C0130D) Community: Clark County #510036 Panel:0130 Suffix:D.</p>	
<p><b>GEOPHYSICAL EXPLORATION NOTES</b></p> <p>1. The Boyce Handy Mart Geophysical Report, dated October 3, 2018 prepared by Triad Engineering, concludes that the resistivity test results indicate the presence of five areas of concern that warrant further exploration (see Sheet 3 of 6 for locations). The contractor shall dig test pits at the five locations, at the time of construction, under the direct supervision of the geotechnical engineer to confirm that their recommendations are being properly implemented. Additional information on the test pit locations, depths, and any sinkhole repair techniques (if found or needed) can be found in the Boyce Handy Mart Geophysical Report included with this plan set.</p>	

LEGEND	
EXISTING INTERMEDIATE CONTOUR	
EXISTING INDEX CONTOUR	
PROPOSED CONTOUR	
EXISTING EDGE OF PAVEMENT	
PROPOSED EDGE OF PAVEMENT	
EXISTING CURB AND GUTTER	
PROPOSED CURB AND GUTTER	
TRANSITION TO REVERSE CURB	
EXISTING TELEPHONE LINE	
PROPOSED TELEPHONE LINE	
EXISTING STORM SEWER WITH INLET	
PROPOSED STORM SEWER WITH INLET	
EXISTING SANITARY SEWER WITH MANHOLE	
PROPOSED SANITARY SEWER WITH MANHOLE	
PROPOSED SAN. LAT. CLEANOUT	
EXISTING ELECTRIC SERVICE	
PROPOSED ELECTRIC SERVICE	
EXISTING GAS LINE	
PROPOSED GAS LINE	
EXISTING WATERLINE W/ TEE	
PROPOSED WATERLINE W/ TEE	
EXISTING FIRE HYDRANT/VALVE/METER	
PROPOSED FIRE HYDRANT/VALVE/METER	
PROPOSED REDUCER	
PROPERTY LINE	
EXISTING EASEMENT	
PROPOSED EASEMENT	
PROPOSED CENTERLINE	
EXISTING CENTERLINE	
EXISTING TREE LINE	
FLOW LINE	
FENCELINE	
EXISTING UTILITY POLE/GUIDE WIRE	
EXISTING TELEPHONE PEDESTAL	
SIGNS	
PARKING INDICATOR	
INDICATES THE NUMBER OF TYP. PARKING SPACES	
HANDICAP PARKING	
VEHICLES PER DAY COUNT	
PROPOSED BUILDING ENTRANCE	
SANITARY MANHOLE IDENTIFIER	
STORM DRAIN STRUCTURE IDENTIFIER	
EXISTING SPOT ELEVATION	
PROPOSED SPOT ELEVATION	
LIGHT POLE	

PROJECT INFORMATION	
PARCEL IDENTIFICATION NO.	TM-28-A-20G
STREET ADDRESS:	8153 JOHN MOSBY HWY (HANDY MART)
PROJECT SITE AREA:	3.96 ACRES OR 172,498 SF (LOTS 1 & 6)
DISTURBED AREA:	2.50 ACRES
CURRENT ZONING:	CH
CURRENT USE:	LOT 6 - VACANT, LOT 1 - COMMERCIAL (GAS/CONV. STORE)
PROPOSED USE:	COMMERCIAL (DIESEL PUMP EXPANSION EX. LOT 6)
MAXIMUM EMPLOYEES (ANTICIPATED):	MAXIMUM 8 EMPLOYEES (EXISTING CONDITIONS) NO NEW EMPLOYEES
REQUIRED BLDG SETBACKS:	
FRONT:	35'
REAR:	10'
SIDE:	10'
PROVIDED SETBACKS:	
FRONT:	74.3' MIN. (EX. HANDY MART PUMP CANOPY)
SIDE:	71.8' (EX. HANDY MART PUMP CANOPY)
REAR:	48.5' (EX. HANDY MART BUILDING)
MAXIMUM BUILDING HEIGHT:	40'
PROPOSED BUILDING HEIGHT:	PROP. CANOPY HEIGHT = 28'
PARKING SETBACK:	
FRONT:	10'
REAR:	5'
SIDE:	5'
SIGN SETBACK:	ALL SIGNS SHALL BE IN ACCORDANCE WITH THE CLARKE COUNTY ZONING ORDINANCE, CODE CHAPTER 188
FRONT:	SECTION 4-I
REAR:	
SIDE:	
MAX LOT COVERAGE BY IMPERVIOUS AREA:	85%
BLDG/PVMT COVERAGE:	59,934 SF OR 1.38 ACRES
% OF LOT AREA:	35%
OPEN AREA:	112,564 SF OR 2.58 ACRES
% OF LOT AREA:	65%
REQUIRED PARKING:	XX SPACES
PROVIDED PARKING:	XX SPACES

NOTES:  
1. ANY PROPOSED SIGNS & OUTDOOR LIGHTING WILL MEET THE REQUIRED ZONING STANDARDS OF CLARKE COUNTY.  
2. LIGHT FIXTURES NOT TO EXCEED 25 FEET IN HEIGHT.

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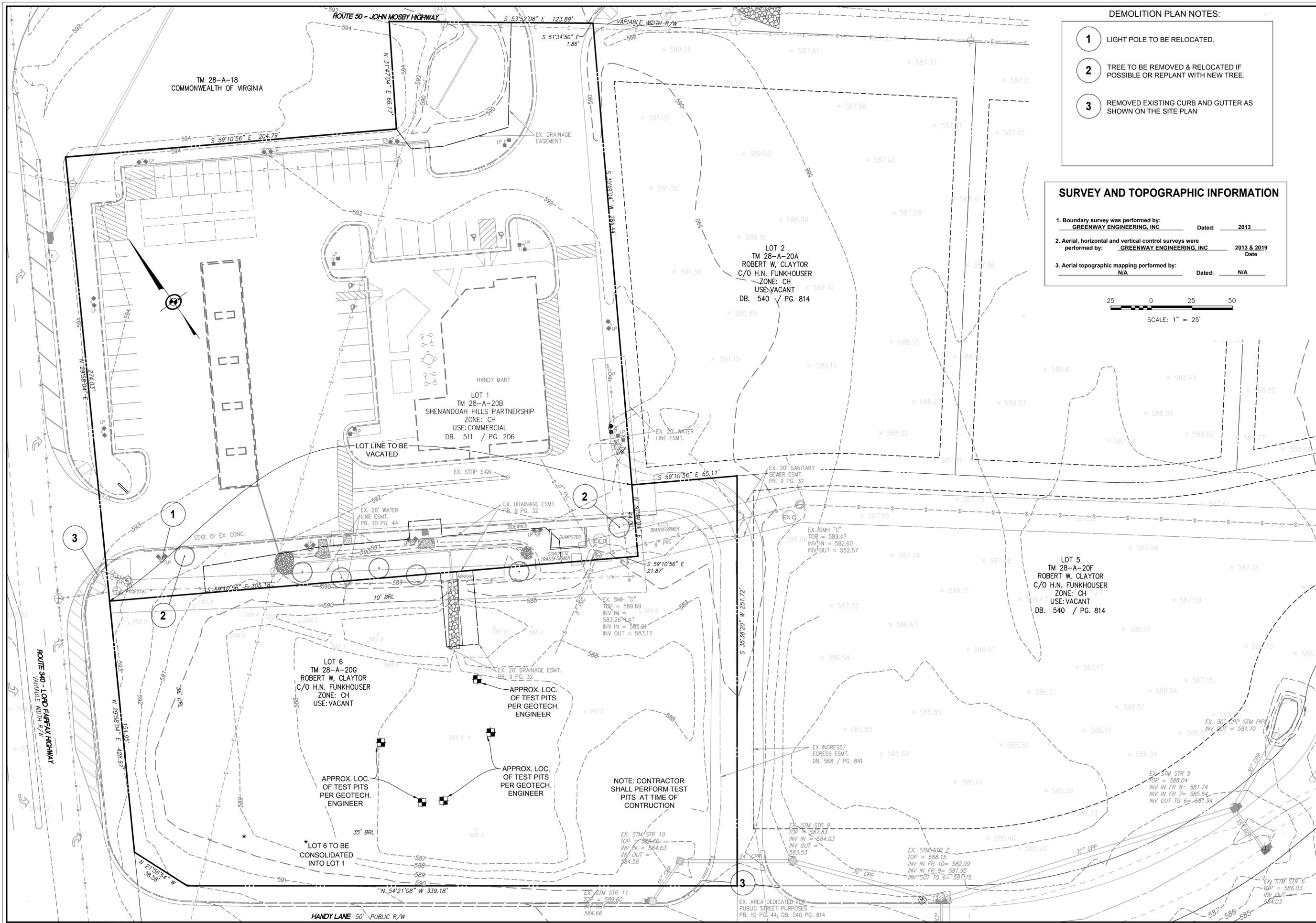
GENERAL NOTES AND LEGEND

**HANDY MART DIESEL PUMP EXPANSION**

GREENWAY MAGISTERIAL DISTRICT  
CLARKE COUNTY, VA

Rev. No.	Date
3	04-19-2019

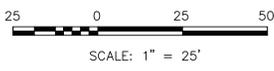
DATE:	06-11-2018
SCALE:	N/A
DESIGNED BY:	NTA
FILE NO.	4515F-2
SHEET	2 OF 15
<b>DWG # 18-10</b>	



- DEMOLITION PLAN NOTES:**
- 1 LIGHT POLE TO BE RELOCATED.
  - 2 TREE TO BE REMOVED & RELOCATED IF POSSIBLE OR REPLANT WITH NEW TREE.
  - 3 REMOVED EXISTING CURB AND GUTTER AS SHOWN ON THE SITE PLAN

**SURVEY AND TOPOGRAPHIC INFORMATION**

1. Boundary survey was performed by:	GREENWAY ENGINEERING, INC	Dated:	2013
2. Aerial, horizontal and vertical control surveys were performed by:	GREENWAY ENGINEERING, INC	2013 & 2019	Date
3. Aerial topographic mapping performed by:	N/A	Dated:	N/A



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**BOUNDARY AND EXISTING TOPO & DEMOLITION PLAN**  
**HANDY MART DIESEL PUMP EXPANSION**  
GREENWAY MAGISTERIAL DISTRICT  
CLARKE COUNTY, VA

Rev. No.	Date
2	04-01-2019



DATE: 06-11-2018

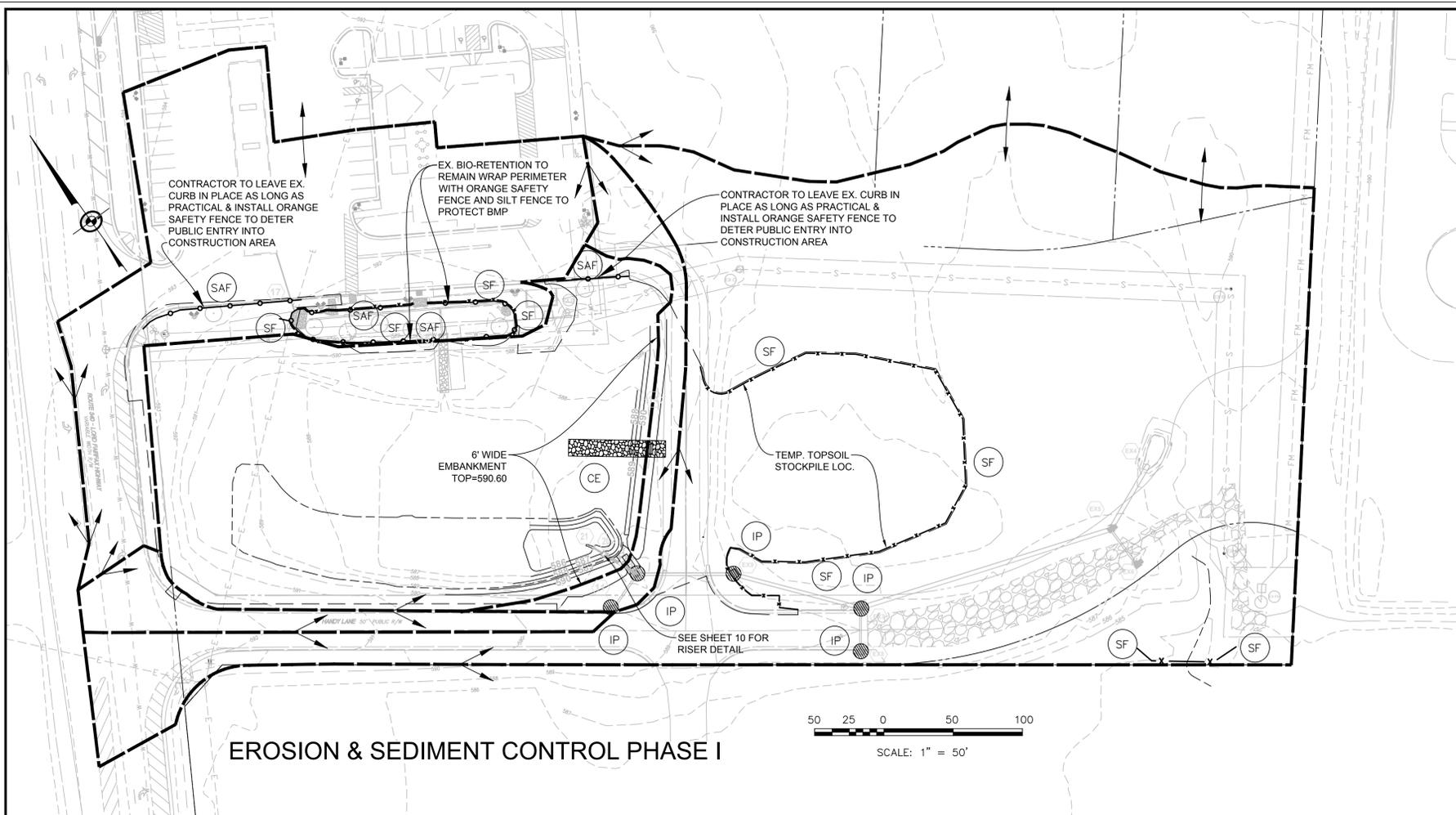
SCALE: 1" = 25'

DESIGNED BY: NTA

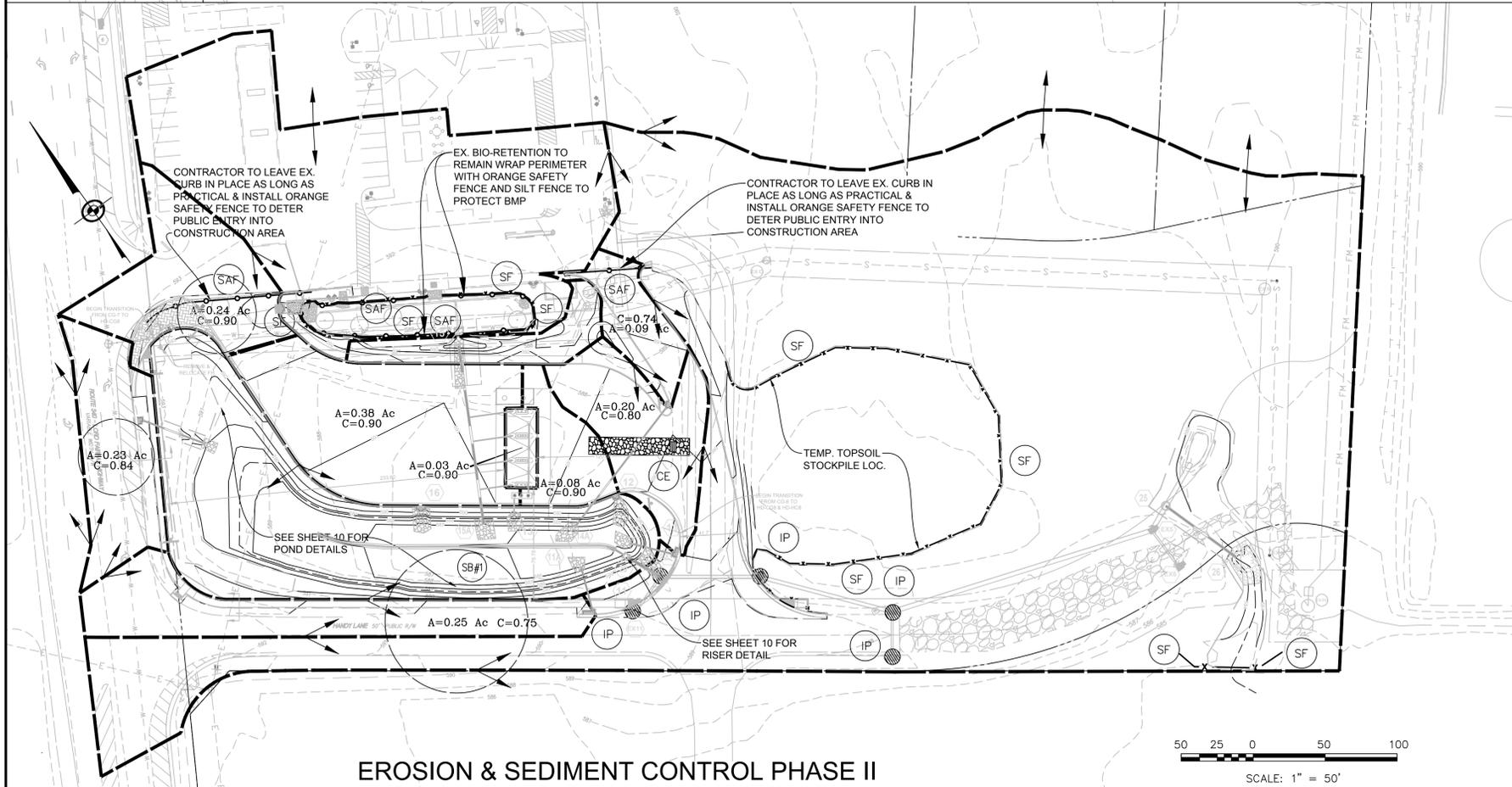
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SHEET 3 OF 15

DWG # 18-10



EROSION & SEDIMENT CONTROL PHASE I



EROSION & SEDIMENT CONTROL PHASE II

**EROSION & SEDIMENT CONTROL NARRATIVE**

**Project Description**

The project development, consisting of the construction/addition of new diesel pumps, and associated travel ways and utilities for the existing Handy Mart Gasoline Station located at the southeast corner of the intersection of Routes 50 / John Mosby Highway and 340 Lord Fairfax Highway, in Clarke County, VA. The properties associated with the project are identified in Clarke County Tax Records as Lot 6, property identification number 28-A-206 and Lot 1 property identification number 28-A-20B. Lot 6 consists of 1.72 acres and is zoned Commercial Highway (CH) while Lot 1 is 2.24 acres in size and is zoned Commercial Highway (CH). A consolidation of Lots 6 and 1 is to be undertaken and anticipated approval by the Clarke County Board of Supervisors will render a single CH zoned lot comprised of 3.96 acres. Land disturbance activities proposed under this plan will be approximately 2.50 acres.

**Existing Site Conditions**

Lot 1 is a gas station and is comprised of amenities typically found at such facilities including gas pumps, pump hood, travel ways, convenience store and landscaped areas. Lot 6 is currently vacant land consisting of successional vegetation, and trees. Overall the two lots have slopes ranging from 0.5% to 7% that drain from north to south to an existing storm system which then drains existing Study Point #1 (See Sheet 9).

**Adjacent Property**

The overall site is bordered on the north by Route 50 / John Mosby Highway, to the west by Route 340 - Lord Fairfax Highway, to the south by Handy Lane and vacant land identified as Future Phase II of the Waterloo Commercial Center, and to the east by vacant land identified as Future Phase II of the Waterloo Commercial Center.

**Soils:** See soils map on sheet 5.

**Critical Areas:** No critical areas are identified with this project.

**Erosion and Sediment Control Measures:** unless otherwise indicated, all vegetative and structural erosion and sediment control measures shall be constructed and maintained according to the minimum standards and specifications of the Virginia Erosion and Sediment Control Handbook.

**STRUCTURAL MEASURES**

**Phase I**

1. Install construction entrance
2. Install inlet protections as shown
3. Install silt fence as shown
4. Install sediment basin.
4. Begin clearing, cut/fill operation and new utility installs

**Phase II**

1. Install inlet protections as shown (inlets protection from phase 1 to remain unless otherwise shown)
2. Commence permanent seeding & entire site stabilization

**Vegetative Measures**

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 fourteen (14) days.

Permanent soil stabilization shall be applied to all areas that are to be left dormant for more than six (6) months.

Topsoil that has been stockpiled shall be surrounded with super silt fence and protected by mulch and/or temporary vegetation immediately after grading.

All earth berms, diversions and sediment trap embankments are to be machine-compacted, seeded and mulched (hay mulch or straw) immediately after installation.

**Stormwater Management Considerations:** See Sheet 9

**Management Strategies**

Construction shall be sequenced such that grading operations will begin and end as quickly as possible.

The site superintendent shall be responsible for the installation and maintenance of all erosion and sediment control measures. Maintenance of these measures throughout the project are critical to the effectiveness of the program.

After areas above controls have been stabilized, the controls shall be cleaned up and removed.

Electric power, telephone, storm, sanitary, water & gas supply trenches are to be compacted, seeded and mulched within five (5) days after backfilling. No more than 500 feet are to be open at any one time.

All cut and fill slopes are to be seeded and mulched within five (5) days of completion of grading.

Devices listed above are considered minimum erosion and sediment controls. Additional control measures may be necessary due to contractor phasing or other unforeseen conditions. It is the contractor's responsibility to provide additional measures to those shown, as needed, in order to control erosion and contain sediment on site. All measures shall be installed according to the standards and specifications in the Virginia Erosion and Sediment Control Handbook.

**Maintenance**

All control measures shall be inspected daily by the site superintendent or his representative and within 24 hours after any storm event greater than 0.25 inches of rain per 24 hour period. Any damaged structural measures are to be repaired by the end of the day. Seeded areas shall be checked regularly to ensure that a good stand of grass is maintained. All areas shall be fertilized and reseeded as needed until grass is established.

Trapped sediment is to be removed as required to maintain 50% trap efficiency and disposed of by spreading on site.

Gravel outlets shall be checked regularly for sediment build-up. If the gravel outlet is clogged by sediment, it shall be removed and cleaned or replaced immediately.

The contractor is responsible for keeping existing public roads in a clean, dust and mud free, condition at all times.

The basin embankment should be checked regularly to ensure that it is structurally sound and has not been damaged by erosion or construction equipment. The emergency spillway should be checked regularly to ensure that its lining is well established and erosion resistant. The basin should be checked after each runoff producing rainfall for sediment cleanout. When the sediment reaches the clean-out level, it shall be removed and properly disposed of.

**Phases of Land Disturbance Activities**

1. Hold a preconstruction meeting prior to any construction. DEQ shall be invited to this preconstruction meeting. DEQ contact info: John McCormack, john.mccormack@deq.virginia.gov, (804) 241-2979.
2. Clearing and grubbing for temporary construction access to install sediment control devices only (Phase I Construction Entrance and Silt Fencing).
3. Placement of sediment control devices.
4. Obtain inspector's approval prior to beginning grading operations.
5. Clear and grub remainder of site.
6. Rough grade site.
7. Install drainage devices with sediment control
8. Final grading.
9. Restoration and stabilization of disturbed areas.
10. With the approval of the inspector, once all denude areas have been stabilized, remove erosion and sediment control measures.

**Seeding Notes:**

1. All permanent seeding shall be in accordance with section 3.32 of the VESCH.
2. Topsoil shall be spread at a minimum depth of 4".
3. Pulverized agricultural grade limestone shall be incorporated into soil (top 4-6 inches) at a rate of 90 lbs. per 1000 s.f. (2 tons per acre).
4. Fertilize with 10-10-10 at a rate of 23 lbs. per 1000 s.f. (1000 lbs. per acre).
5. Seed mix shall consist of 90% Kentucky 31 Tall Fescue and 10% Improved Perennial Ryegrass applied at the rate of 250 lbs. per acre.
6. Straw mulch shall be applied to all seeded areas at the rate of 3500 lbs. per acre and anchored with cutback, or emulsified asphalt applied at a rate of 200 gallons per acre.

**Dust Control:**

1. Temporary seeding shall be applied to all disturbed areas subject to little or no construction traffic.
2. All haul road and other heavy traffic routes shall be sprinkled with water until the surface is wet, and repeated as needed to control dust.

**RESPONSIBLE LAND DISTURBER**  
 NAME: \_\_\_\_\_  
 CERTIFICATION #: \_\_\_\_\_  
 DATE: \_\_\_\_\_  
 THE RESPONSIBLE LAND DISTURBER IS THE PARTY RESPONSIBLE FOR CARRYING OUT THE LAND DISTURBING ACTIVITY AS SET FORTH IN THE PLANS.

NO.	KEY	SYMBOL	DESCRIPTION
3.14	SB	○	SEDIMENT BASIN
3.01	SAF	—○—○—○—	SAFETY FENCE (ORANGE PLASTIC)
3.02	CE	▨	TEMPORARY GRAVEL CONSTRUCTION ENTRANCE
3.05	SF	x x x x	SILT FENCE
3.07	IP	⊗	STORM DRAIN INLET PROTECTION
3.30	TO	○	TOPSOILING
3.31	TS	○	TEMPORARY SEEDING
3.32	PS	○	PERMANENT SEEDING
3.35	MU	⊕	MULCHING
3.08	QIP	⊕	CULVERT INLET PROTECTION
3.18	OP	⊗	OUTLET PROTECTION
	LOG	---	LIMITS OF CLEARING & GRADING
		→	DRAINAGE DIVIDES

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ESS PHASE I & II

**HANDY MART DIESEL PUMP EXPANSION**

GREENWAY MAGISTERIAL DISTRICT  
 CLARKE COUNTY, VA

Rev. No.	Date
4	05-21-2019
DATE:	06-11-2018
SCALE:	1" = 50'
DESIGNED BY:	NTA
FILE NO.	4515F-2
SHEET	4 OF 15
DWG #	18-10

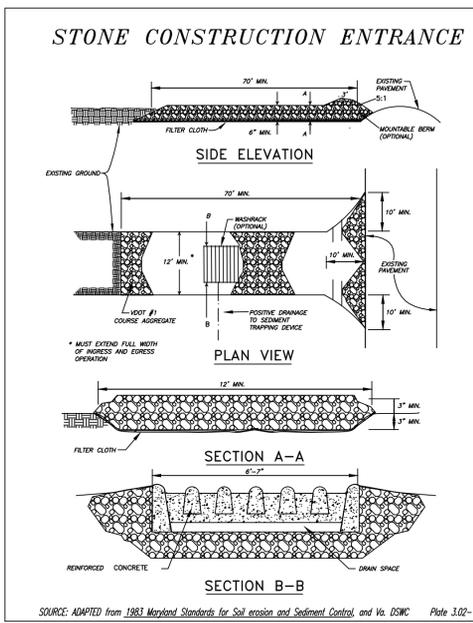
**MINIMUM GENERAL CONSTRUCTION STANDARDS**

An erosion and sediment control program adopted with this plan must be consistent with the VSECH for 9VAC25-840-40 minimum standards.

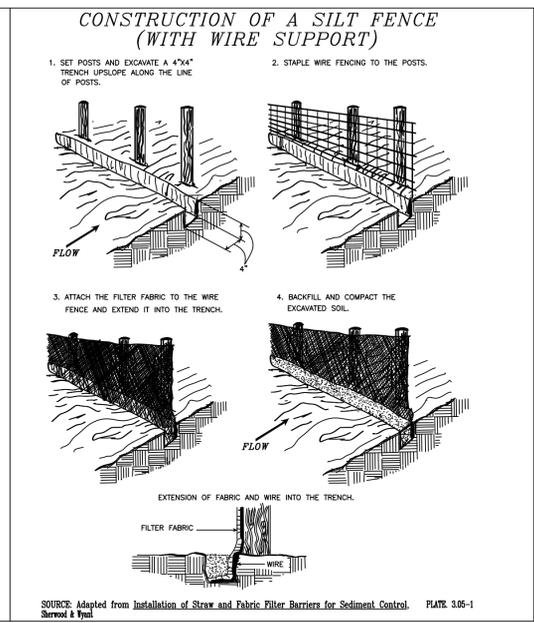
- Permanent or temporary soil stabilization shall be applied to denuded areas within seven days after final grade is reached on any portion of the site. Temporary soil stabilization shall be applied within seven days to denuded areas that may not be at final grade but will remain dormant for longer than 14 days. Permanent stabilization shall be applied to areas that are to be left dormant for more than one year.
- During construction of the project, soil stock piles and borrow areas shall be stabilized or protected with sediment trapping measures. The applicant is responsible for the temporary protection and permanent stabilization of all soil stockpiles on site as well as borrow areas and soil intentionally transported from the project site.
- 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.
- 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.
- Stabilization measures shall be applied to earthen structures such as dams, dikes and diversions immediately after installation.
- Sediment traps and sediment basins shall be designed and constructed based upon the total drainage area to be served by the trap or basin.
  - 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 acres.
  - Surface runoff from disturbed areas that is comprised of flow from drainage areas greater than or equal to three 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 100-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.
- 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 year of permanent stabilization shall be provided with additional slope stabilizing measures until the problem is corrected.
- Concentrated runoff shall not flow down cut or fill slopes unless contained within an adequate temporary or permanent channel, flume or slope drain structure.
- Whenever water seeps from a slope face, adequate drainage or other protection shall be provided.
- All storm sewer inlets that are made operable 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.
- 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.
- 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.
- 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.
- All applicable federal, state and local requirements pertaining to working in or crossing live watercourses shall be met.
- The bed and banks of a watercourse shall be stabilized immediately after work in the watercourse is completed.
- Underground utility lines shall be installed in accordance with the following standards in addition to other applicable criteria.
  - No more than 500 linear feet of trench may be opened at one time.
  - Excavated material shall be placed on the uphill side of trenches.
  - 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.
  - Material used for backfilling trenches shall be properly compacted in order to minimize erosion and promote stabilization.
  - Restabilization shall be accomplished in accordance with this chapter.
  - Applicable safety requirements shall be complied with.
- Where construction vehicle 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.
- All temporary erosion and sediment control measures shall be removed within 30 days after final site stabilization or after the temporary measures are no longer needed, unless otherwise authorized by the VESCP authority. Trapped sediment and the disturbed soil areas resulting from the disposition 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 duration in accordance with the following standards and criteria. Stream restoration and relocation projects that incorporate natural channel design concepts are not man-made channels and shall be exempt from any flow rate capacity and velocity requirements for natural or man-made channels:

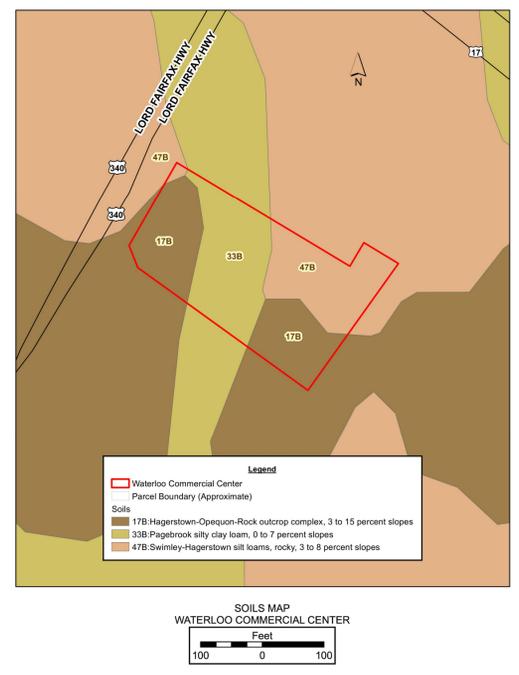
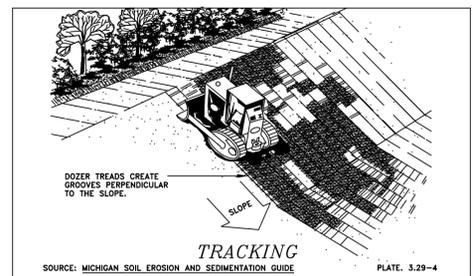
- Concentrated stormwater runoff leaving a development site shall be discharged directly into an adequate natural or man-made receiving channel, pipe or storm sewer system. For those sites where runoff is discharged into a pipe or pipe system, downstream stability analyses at the outfall of the pipe or pipe system shall be performed.
- Adequacy of all channels and pipes shall be verified in the following manner:
  - The applicant shall 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 in question; or
  - (a) Natural channels shall be analyzed by the use of a two-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 two-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.
  - If existing natural receiving channels or previously constructed man-made channels or pipes are not adequate, the applicant shall:
    - Improve the channels to a condition where a 10-year storm will not overtop the banks and a two-year storm will not cause erosion to the channel, the bed, or the banks; or
    - Improve the pipe or pipe system to a condition where the 10-year storm is contained within the appurtenances;
    - Develop a site design that will not cause the pre-development peak runoff rate from a two-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
    - Provide a combination of channel improvement, stormwater detention or other measures which is satisfactory to the VESCP authority to prevent downstream erosion.
- The applicant shall provide evidence of permission to make the improvements.
- All hydrologic analyses shall be based on the existing watershed characteristics and the ultimate development condition of the subject project.
- If the applicant chooses an option that includes stormwater detention, he shall obtain approval from the VESCP 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.
- Outfall from a detention facility shall be discharged to a receiving channel, and energy dissipators shall be placed at the outfall of all detention facilities as necessary to provide a stabilized transition from the facility to the receiving channel.
- All on-site channels must be verified to be adequate.
  - 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.
  - 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.
  - 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.
  - Any plan approved prior to July 1, 2014, that provides for stormwater management that addresses any flow rate capacity and velocity requirements for natural or man-made channels shall satisfy the flow rate capacity and velocity requirements for natural or man-made channels if the practices are designed to (i) detain the water quality volume and to release it over 48 hours; (ii) detain and release over a 24-hour period the expected rainfall resulting from the one year, 24-hour storm; and (iii) reduce the allowable peak flow rate resulting from the 1.5, 2, and 10-year, 24-hour storms to a level that is less than or equal to the peak flow rate from the site assuming it was in a good forested condition, achieved through multiplication of the forested peak flow rate by a reduction factor that is equal to the runoff volume from the site when it was in a good forested condition divided by the runoff volume from the site in its proposed condition, and shall be exempt from any flow rate capacity and velocity requirements for natural or man-made channels as defined in any regulations promulgated pursuant to § 62.1-44.15.54 or 62.1-44.15.65 of the Act.
  - For plans approved on and after July 1, 2014, the flow rate capacity and velocity requirements of § 62.1-44.15.52 A of the Act and this subsection shall be satisfied by compliance with water quantity requirements in the Stormwater Management Act (§ 62.1-44.15.24 et seq. of the Code of Virginia) and attendant regulations, unless such land-disturbing activities are in accordance with 9VAC25-870-48 of the Virginia Stormwater Management Program (VSMP) Regulation or are exempt pursuant to subdivision C 7 of § 62.1-44.15.34 of the Act.
  - Compliance with the water quantity minimum standards set out in 9VAC25-870-66 of the Virginia Stormwater Management Program (VSMP) Regulation shall be deemed to satisfy the requirements of this subdivision 19.



SOURCE: ADAPTED FROM 1983 Maryland Standards for Soil Erosion and Sediment Control, and Va. DSWC Plate 3.02-1



SOURCE: ADAPTED FROM INSTALLATION OF STRAW AND FABRIC FILTER BARRIERS FOR SEDIMENT CONTROL, Plate 3.05-1 Sherrod & Tynt



**TABLE 3.31-B ACCEPTABLE TEMPORARY SEEDING PLANT MATERIALS**

"QUICK REFERENCE FOR ALL REGIONS"

Planting Dates	Species	Rate (lbs./acre)
Sept. 1 - Feb. 15	50/50 Mix of Annual Ryegrass (Lolium multi-florum) & Cereal (Winter) Rye (Secal cereale)	50 - 100
Feb. 16 - Apr. 30	Annual Ryegrass (Lolium multi-florum)	60 - 100
May 1 - Aug. 31	German Millet (Setaria italica)	50

Seeding: Seed shall be evenly applied with a broadcast seeder, drill, cultipacker seeder or hydroseder. Small grains shall be planted no more than one inch deep. Grasses and legumes shall be planted with no less than 1/4" soil cover.

**TABLE 3.32-C SITE SPECIFIC PERMANENT SEEDING MIXTURES FOR APPALACHIAN/MOUNTAIN AREA**

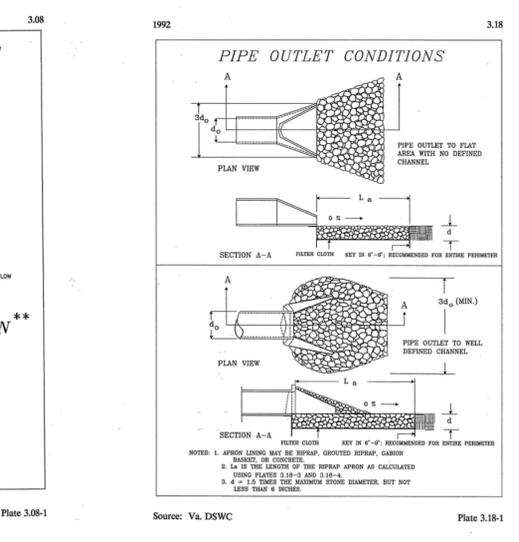
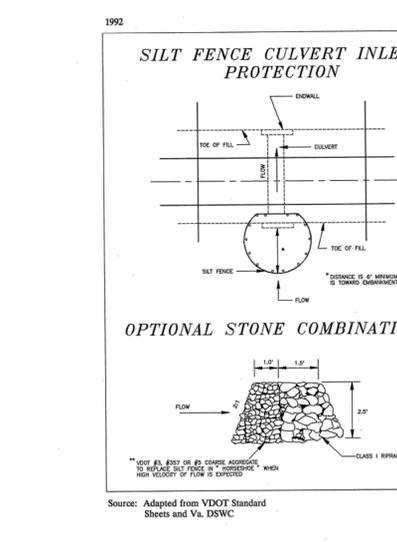
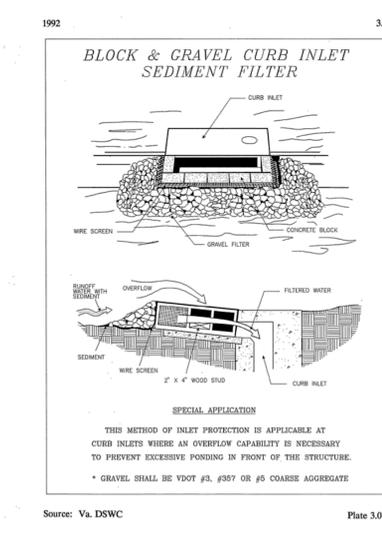
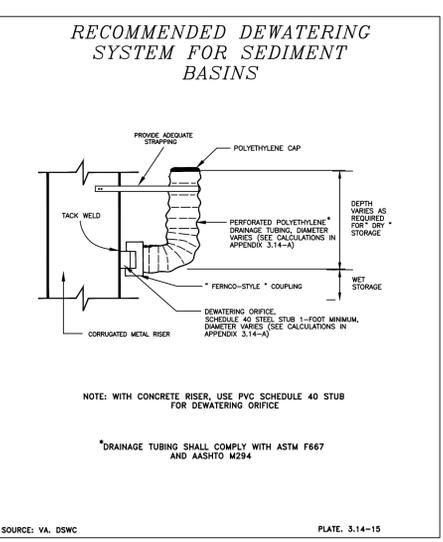
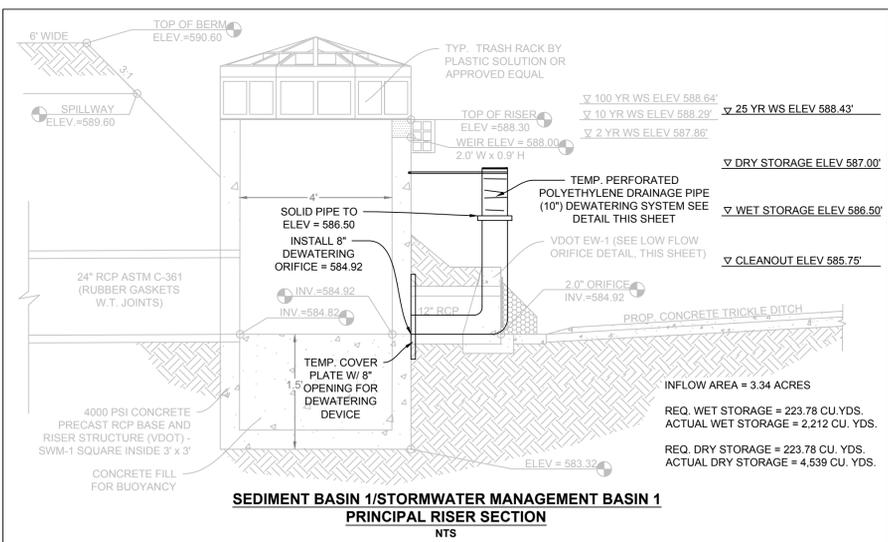
Minimum Care Lawn	Total Lbs. Per Acre
- Commercial or Residential	200-250 lbs.
- Kentucky 31 or Turf-Type Tall Fescue	90-100%
- Improved Perennial Ryegrass *	0-10%
- Kentucky Bluegrass	0-10%
High-Maintenance Lawn	
Minimum of three (3) up to five (5) varieties of bluegrass from approved list for use in Virginia.	125 lbs.
General Slope (3:1 or less)	
- Kentucky 31 Fescue	128 lbs.
- Red Top Grass	2 lbs.
- Seasonal Nurse Crop**	20 lbs.
Low-Maintenance Slope (Steeper than 3:1)	
- Kentucky 31 Fescue	108 lbs.
- Red Top Grass	2 lbs.
- Seasonal Nurse Crop**	20 lbs.
- Crownvetch ***	150 lbs.

\* Perennial Ryegrass will germinate faster and at lower soil temperatures than fescue, thereby providing cover and erosion resistance for seeded.

\*\* Use seasonal nurse crop in accordance with seeding dates as stated below:

March, April through May 15th	Annual Rye
May 16th through August 15th	Foxtail Millet
August 16th through Sept./Oct.	Annual Rye
November through February	Winter Rye

\*\*\* If Flatpea is used, increase to 30 lbs./acre. All legume seed must be properly inoculated. Weeping Lovegrass may also be included in any slope or low-maintenance mixtures during warmer seeding periods; add 10-20 lbs./acre in mixes.



**GREENWAY ENGINEERING**

151 Windy Hill Lane  
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**HANDY MART DIESEL PUMP EXPANSION**

E&S NARRATIVE & DETAILS  
GREENWAY MAGISTERIAL DISTRICT  
CLARKE COUNTY, VA

Rev. No. 3 Date 04-19-2019

COMMONWEALTH OF VIRGINIA  
TUNG NHI ADHERUSUM  
Lic. No. 28715  
5/21/19  
PROFESSIONAL ENGINEER

DATE: 06-11-2018

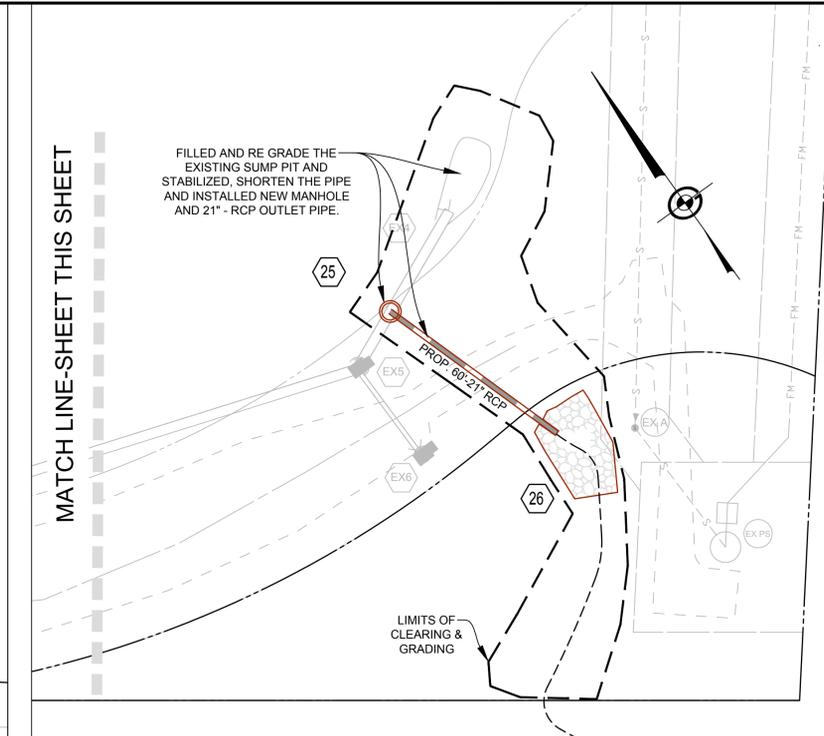
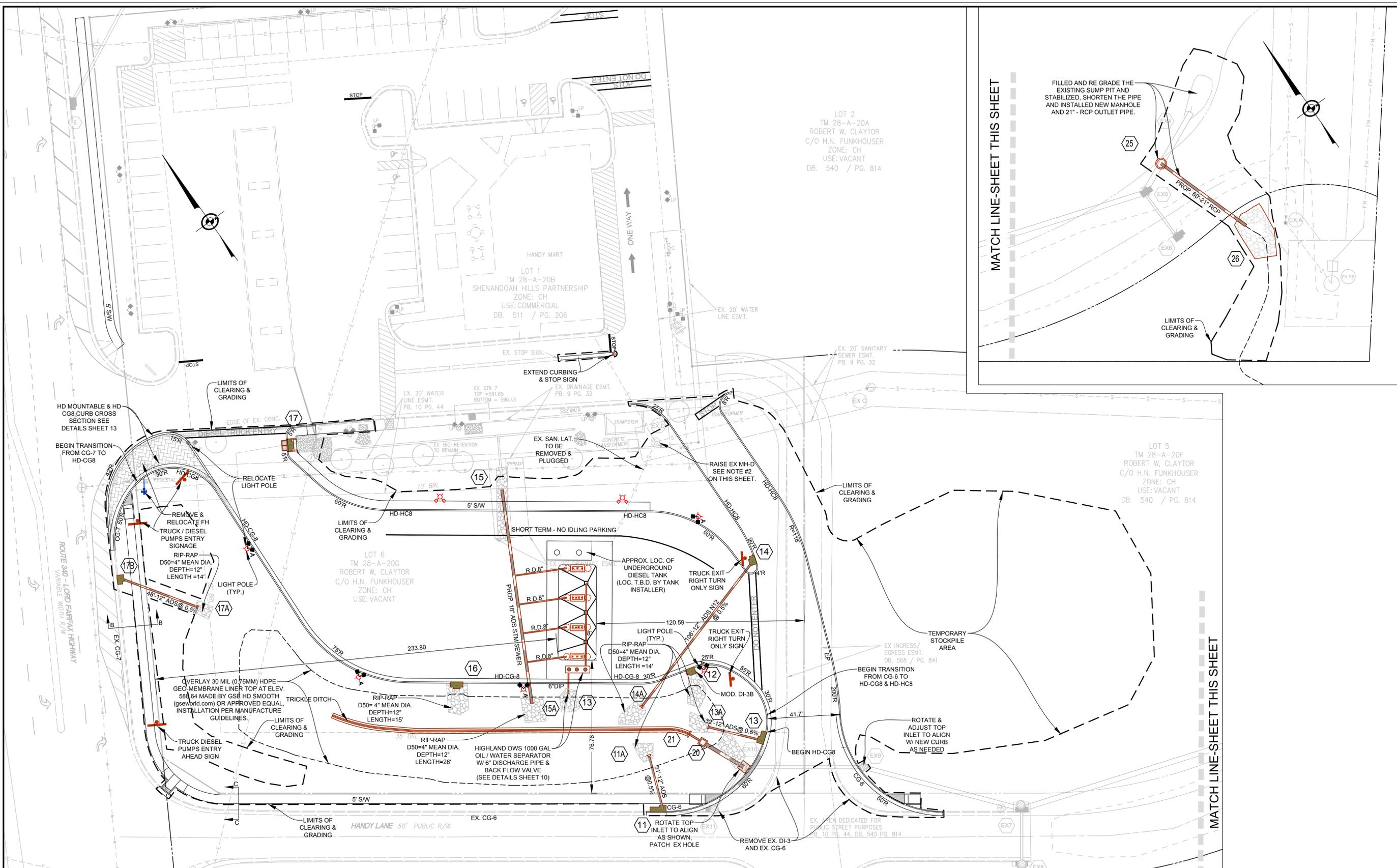
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DESIGNED BY: NTA

FILE NO. 4515F-2

SHEET 5 OF 15

DWG # 18-10



LOT 2  
 TM 28-A-20A  
 ROBERT W. CLAYTOR  
 C/O H.N. FUNKHOUSER  
 ZONE: CH  
 USE: VACANT  
 DB. 540 / PG. 814

LOT 1  
 TM 28-A-20B  
 SHENANDOAH HILLS PARTNERSHIP  
 ZONE: CH  
 USE: COMMERCIAL  
 DB. 511 / PG. 206

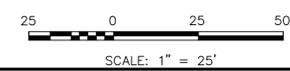
LOT 5  
 TM 28-A-20F  
 ROBERT W. CLAYTOR  
 C/O H.N. FUNKHOUSER  
 ZONE: CH  
 USE: VACANT  
 DB. 540 / PG. 814

LOT 6  
 TM 28-A-20G  
 ROBERT W. CLAYTOR  
 C/O H.N. FUNKHOUSER  
 ZONE: CH  
 USE: VACANT

T.M. 28-A-20  
 WILLIAM A. BRYARLY JR. TRUSTEE  
 D.B. 469, PG. 333  
 INST. No. 060003515  
 ZONE: AOC  
 USE: VACANT

- NOTE:
- CONTRACTOR TO COORDINATE WITH VDOT TO MODIFY THE EXISTING STRIPING TO ACCOMMODATE THE WIDENED ENTRANCE
  - RAISE EX. TOP MH-D TO (2.5 FEET), INSTALLATION OF 4-FOOT DIAMETER RISER SECTION WITH FINISHED CHIMNEY NOT TO EXCEED 1 VERTICAL FOOT ABOVE GRADE. DIG UP, VACUUM TESTING OF THE ADJUSTED EX. MH-D, AND BACKFILLING SHALL OCCUR IN THE PRESENCE OF REPRESENTATIVE OF CCSA. VERTICAL ADJUSTMENT MUST BE WATERTIGHT CONSTRUCTION. VISIBLE INFILTRATION WILL BE CAUSE FOR GROUND REJECTION.

- NOTE:
- THE EXISTING UTILITIES SHOWN ON THIS PLAN ARE BASED ON FIELD SURVEY ASBUILT & MATCH WITH 2010 ASBUILT PLAN
  - ALL MATERIALS PURCHASED AND INSTALLED SHALL BE IN ACCORDANCE WITH THE APPROVED MATERIALS LIST.
  - THE AUTHORITY'S REPRESENTATIVE MUST WITNESS INSTALLATION AND TESTING.
  - PROVIDE POSITIVE DRAINAGE AWAY FROM SANITARY MANHOLES THROUGHOUT CONSTRUCTION.
  - VACATED WATER EASEMENT, EX. WATER AND SEWER EASEMENTS SHOWN PER RECORDED PLAT AND LABELED ON THE PLAN ACCORDINGLY



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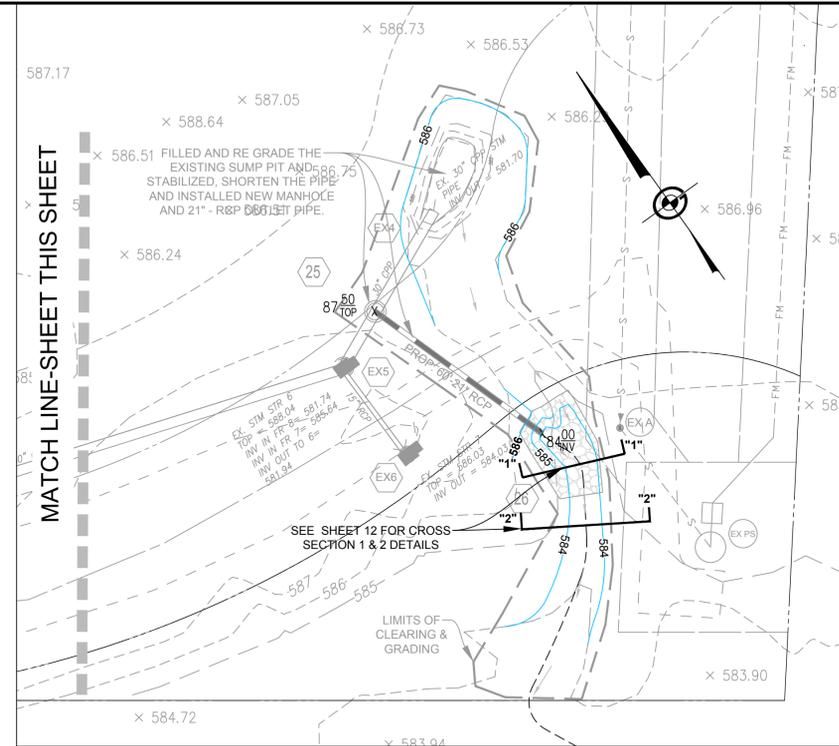
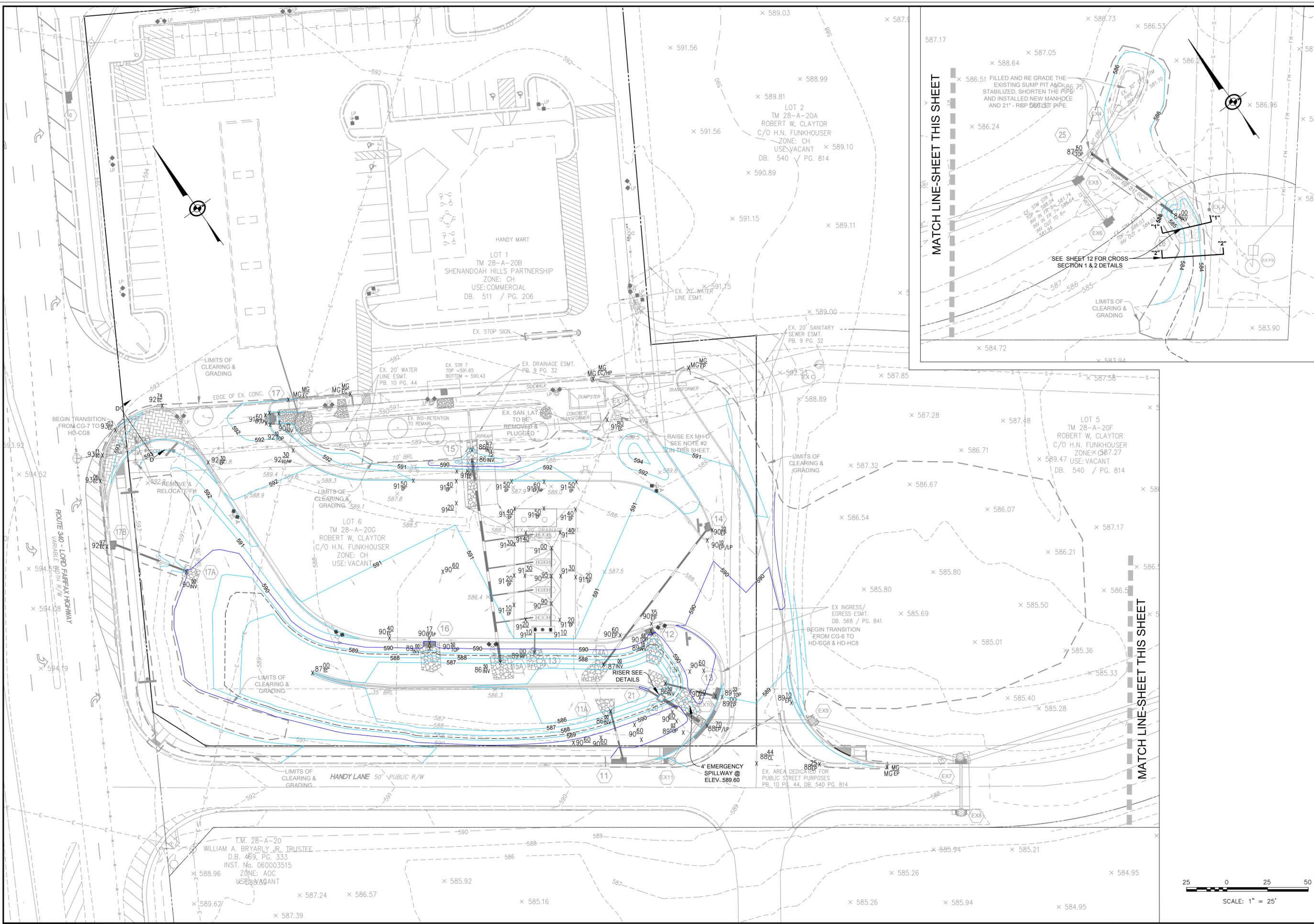
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SITE PLAN  
**HANDY MART DIESEL PUMP EXPANSION**  
 GREENWAY MAGISTERIAL DISTRICT  
 CLARKE COUNTY, VA

Rev. No.	Date
4	05-21-2019



DATE:	06-11-2018
SCALE:	1" = 25'
DESIGNED BY:	NTA
FILE NO.	4515F-2
SHEET	6 OF 15
DWG #	18-10



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**GRADING PLAN**  
**HANDY MART DIESEL PUMP EXPANSION**  
GREENWAY MAGISTERIAL DISTRICT  
CLARKE COUNTY, VA

Rev. No.	Date
4	05-21-2019

DATE: 06-11-2018

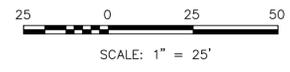
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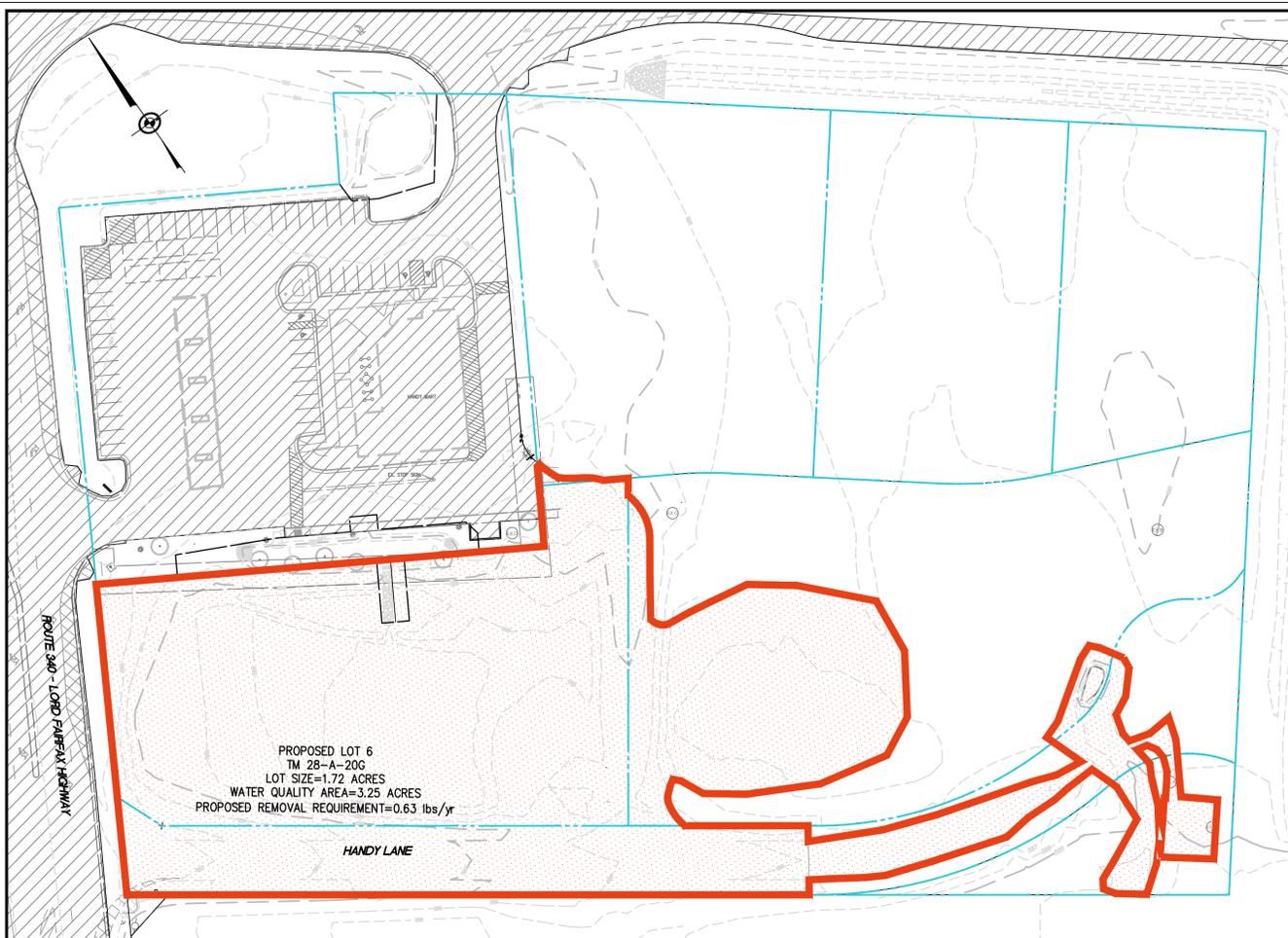
DESIGNED BY: NTA

FILE NO. 4515F-2

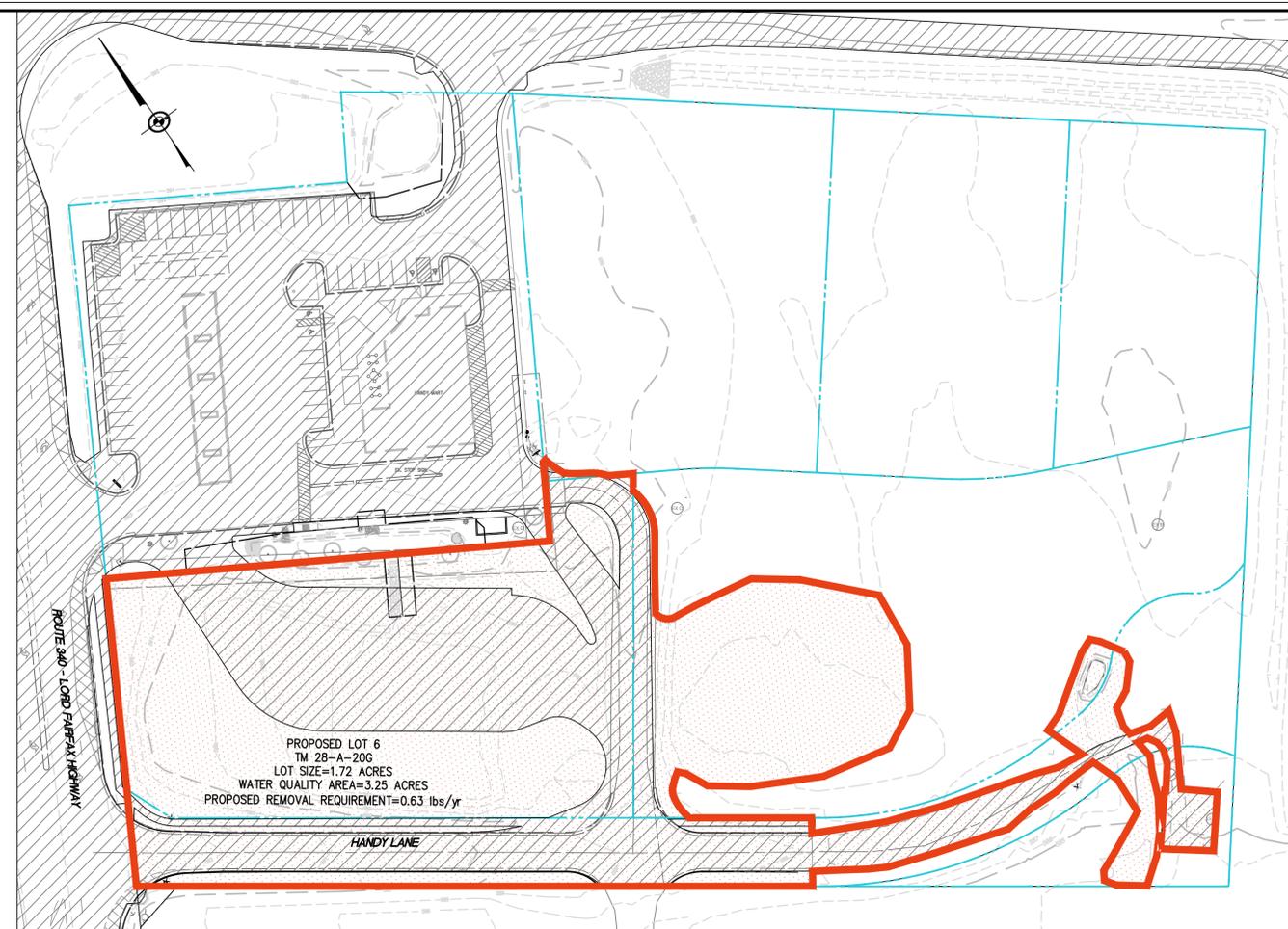
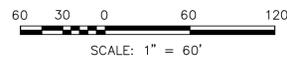
SHEET 7 OF 15

DWG # 18-10

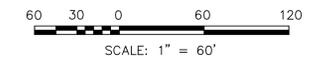




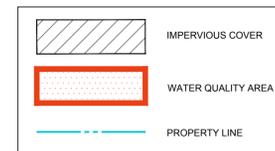
**PRE-DEVELOPMENT IMPERVIOUS COVER**



**POST-DEVELOPMENT IMPERVIOUS COVER**



**LEGEND**



WATER QUALITY PLAN

**HANDY MART DIESEL PUMP EXPANSION**

GREENWAY MAGISTERIAL DISTRICT  
CLARKE COUNTY, VA

151 Windy Hill Lane  
Winchester, Virginia 22602  
Telephone: (540) 662-4185  
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Date: April 12, 2019  
To: Robert Clayton  
2150 S. Loudoun Street  
Winchester, VA 22601  
From: Old Dominion Natural Resources, LLC  
PO Box 604  
Stephens City, Virginia 22655  
Subject: Potomac Watershed – Nutrient Credit Availability

Project Reference: Handy Mart Diesel Expansion– Clarke County, VA HUC 0004  
This letter is to confirm the availability of 0.63 lb/yr authorized nutrient credits ("Nutrient Credits") from Old Dominion Natural Resources, LLC's upcoming [pending or approved] Potomac nutrient bank facility for use by permit applicants within the Potomac watershed, to include the subject property HUC82070007, to compensate for nutrient loadings in excess of state or local regulations, as per Virginia Code § 62.1-44.15-35 and § 62.1-44.19-14 and Virginia Administrative Code 9 VAC 25-820-10 et seq. These Nutrient Credits are generated and managed under the terms of the Banking Instruments known as the Cross Junction Nutrient Reduction Implementation Plan ("NIRP").

Please feel free to contact me if you have any questions.

Sincerely,

Jeremy N. Tweedie  
OLD DOMINION NATURAL RESOURCES, LLC  
C:540-974-0343 | E: odnr@comcast.net

www.ODNRVA.com

**PERFORMANCE BASED WATER QUALITY CALCULATIONS - APPENDIX 5D**

**Worksheet 2**  
Page 1 of 4

Summary of Situation 2 criteria: from calculation procedure **STEP 1** thru **STEP 3**, Worksheet 1:

Applicable area (A)\* = 3.25 acres

$I_{post} = (\text{total post-development impervious cover} + A) \times 100 = 47\%$

$I_{watershed} = 38\%$  or  $I_{watershed} = 16\%$

$I_{existing} = (\text{total existing impervious cover} + A) \times 100 = 0\%$

$I_{existing} 0\% \leq I_{watershed} 38\%$  and

$I_{post} 47\% > I_{watershed} 38\%$

**STEP 4 Determine the relative pre-development pollutant load ( $L_{pre}$ ).**

$L_{pre(watershed)} = [0.05 + (0.009 \times I_{watershed})] \times 2.28 \times A$  (Equation 5-16)

where  $L_{pre(watershed)}$  = relative pre-development total phosphorus load (lbs/year)  
 $I_{watershed}$  = average land cover condition for specific watershed or locality or the Chesapeake Bay default value of 16% (percent expressed in whole numbers)  
A = applicable area (acres)

$L_{pre(watershed)} = [0.05 + (0.009 \times 38)] \times 2.28 \times 3.25$   
= 2.90 pounds per year

**PERFORMANCE BASED WATER QUALITY CALCULATIONS - APPENDIX 5D**

**Worksheet 2**  
Page 2 of 4

**STEP 5 Determine the relative post-development pollutant load ( $L_{post}$ ).**

$L_{post} = [0.05 + (0.009 \times I_{post})] \times 2.28 \times A$  (Equation 5-21)

where  $L_{post}$  = relative post-development total phosphorus load (lbs/year)  
 $I_{post}$  = post-development percent impervious cover (percent expressed in whole numbers)  
A = applicable area (acres)

$L_{post} = [0.05 + (0.009 \times 47)] \times 2.28 \times 3.25$

**PERFORMANCE BASED WATER QUALITY CALCULATIONS - APPENDIX 5D**

= 3.53 pounds per year

**STEP 6 Determine the relative pollutant removal requirement (RR).**

$RR = L_{post} - L_{pre(watershed)}$   
= 3.53 - 2.90  
= 0.63 pounds per year

**STEP 7 Identify best management practice (BMP) for the site.**

1. Determine the required pollutant removal efficiency for the site:

$EFF = (RR + L_{post}) \times 100$  (Equation 5-22)

where  $EFF$  = required pollutant removal efficiency (percent expressed in whole numbers)  
RR = pollutant removal requirement (pounds per year)  
 $L_{post}$  = relative post-development total phosphorus load (lbs/year)

$EFF = \frac{0.63}{3.53} \times 100$   
 $EFF = 18\%$

**PERFORMANCE BASED WATER QUALITY CALCULATIONS - APPENDIX 5D**

**Worksheet 2**  
Page 3 of 4

2. Select BMP(s) from **Table 5-15** and locate on the site:

BMP 1:  acres  
BMP 1 efficiency:   
BMP 1 drainage area:  acres  
BMP 1 percent impervious:

BMP 2:  acres  
BMP 2 efficiency:   
BMP 2 drainage area:  acres  
BMP 2 percent impervious:

BMP 3:  acres  
BMP 3 efficiency:   
BMP 3 drainage area:  acres  
BMP 3 percent impervious:

**PERFORMANCE BASED WATER QUALITY CALCULATIONS - APPENDIX 5D**

**Worksheet 2**  
Page 4 of 5

3. Determine the pollutant load entering the proposed BMP(s):

$L_{BMP} = [0.05 + (0.009 \times I_{BMP})] \times 2.28 \times A$  (Equation 5-23)

where  $L_{BMP}$  = relative post-development total phosphorus load entering proposed BMP (pounds per year)  
 $I_{BMP}$  = post-development percent impervious cover of BMP drainage area (percent expressed in whole numbers)  
A = drainage area of proposed BMP (acres)

$L_{BMP1} = [0.05 + (0.009 \times 0)] \times 2.28 \times 0.00$   
= 0.00 pounds per year

$L_{BMP2} = [0.05 + (0.009 \times 0)] \times 2.28 \times 0.00$   
= 0.00 pounds per year

$L_{BMP3} = [0.05 + (0.009 \times 0)] \times 2.28 \times 0.00$   
= 0.00 pounds per year

**PERFORMANCE BASED WATER QUALITY CALCULATIONS - APPENDIX 5D**

4. Calculate the pollutant load removed by the proposed BMP(s):

$L_{removed} = EFF_{BMP} \times L_{BMP}$  (Equation 5-24)

where  $L_{removed}$  = post-development pollutant load removed by proposed BMP (pounds per year)  
 $EFF_{BMP}$  = pollutant removal efficiency of BMP (expressed in decimals)  
 $L_{BMP}$  = relative post-development total phosphorus load entering proposed BMP (pounds per year)

$L_{removedBMP1} = 0\% \times 0.00 = 0.00$  lbs/year

$L_{removedBMP2} = 0\% \times 0.00 = 0.00$  lbs/year

$L_{removedBMP3} = 0\% \times 0.00 = 0.00$  lbs/year

**PERFORMANCE BASED WATER QUALITY CALCULATIONS - APPENDIX 5D**

**Worksheet 2**  
Page 5 of 5

5. Calculate the total pollutant load removed by the BMP(s):

**Worksheet 2**  
Page 4 of 5

$L_{removed} = L_{removedBMP1} + L_{removedBMP2} + L_{removedBMP3}$  (Equation 5-25)

where  $L_{removed}$  = total pollutant load removed by proposed BMPs  
 $L_{removedBMP1}$  = pollutant load removed by proposed BMP No. 1  
 $L_{removedBMP2}$  = pollutant load removed by proposed BMP No. 2  
 $L_{removedBMP3}$  = pollutant load removed by proposed BMP No. 3

$L_{removed} = 0.00 + 0.00 + 0.00$   
= 0.00 pounds per year

6. Verify compliance:

$L_{removed} > RR$   
 $0.00 > 0.63$

Therefore the design is **INCORRECT**

**NOTE:**  
1. THE WATER QUALITY REMOVAL REQUIREMENT "RR" FOR THE PROPOSED HANDY MART DIESEL PUMP EXPANSION IS 0.63 LBS/YR. THE WATER QUALITY AREA IS 3.25 ACRES. THIS AREA INCLUDES LOT 6 AND IMPERVIOUS AREAS FROM EXISTING HANDY LANE, THE EXISTING PUMP STATION, AND THE EXISTING ROAD FROM HANDY LANE TO HANDY MART. (SEE POST DEVELOPMENT IMPERVIOUS COVER ABOVE) THE LIMITS OF DISTURBANCE FOR THIS PROJECT IS 2.50 ACRES. THIS AREA EXCLUDES EXISTING HANDY LANE, THE EXISTING PUMP STATION, AND THE EXISTING ROAD FROM HANDY LANE TO HANDY MART.

Rev. No.	Date
4	05-21-2019



DATE: 06-11-2018

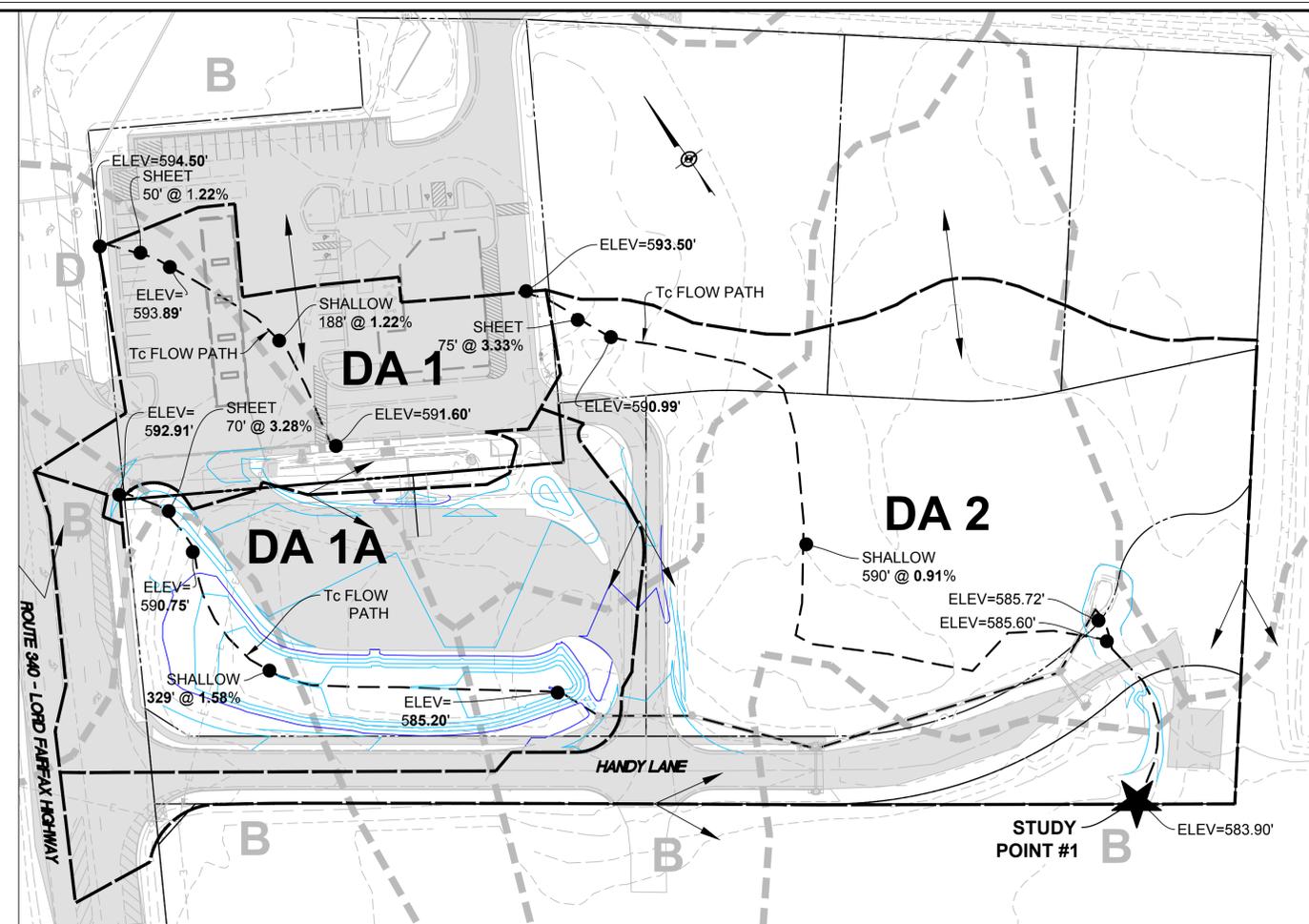
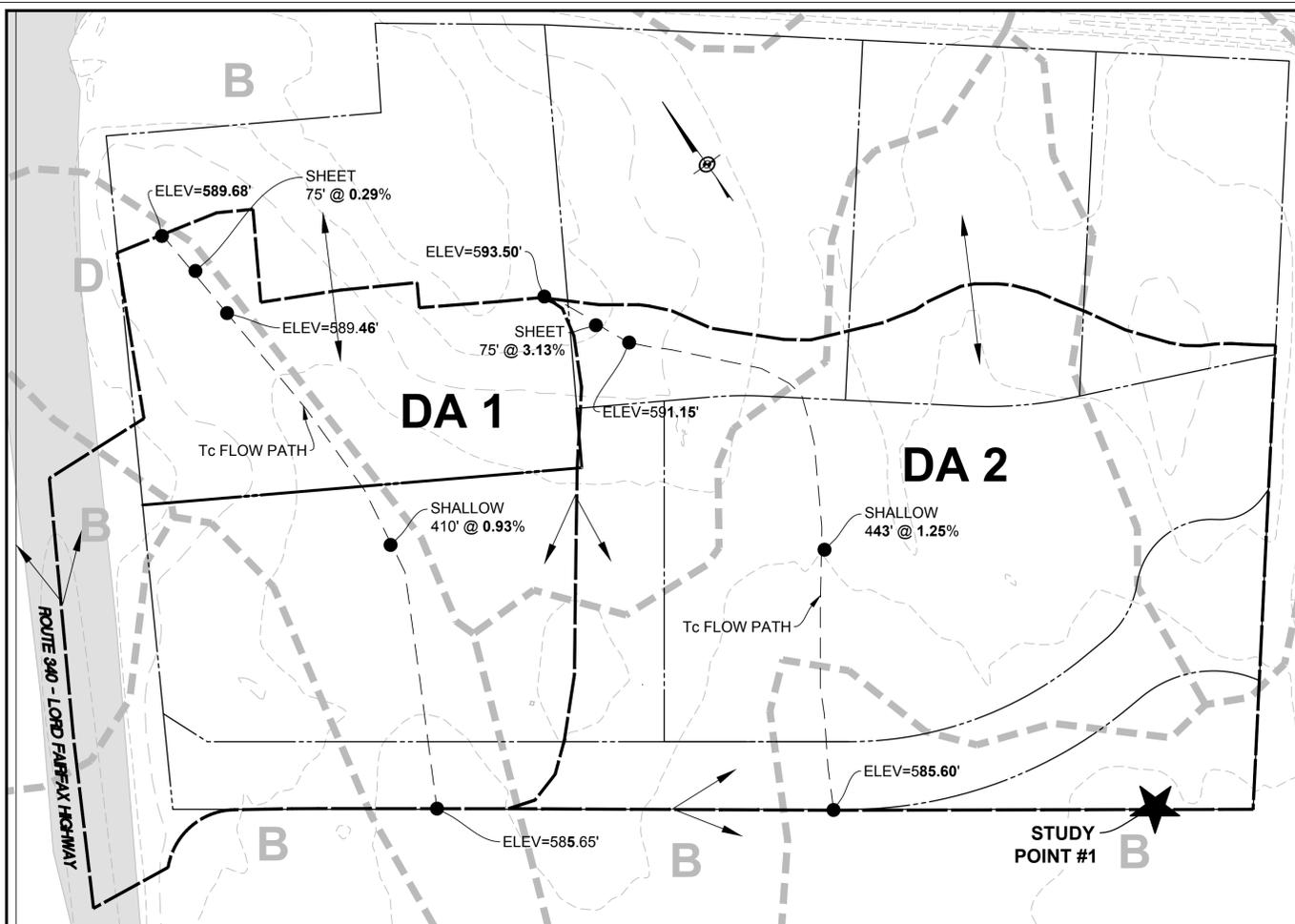
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DESIGNED BY: NTA

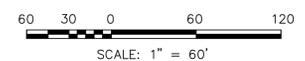
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SHEET 8 OF 15

DWG # 18-10



**PRE-DEVELOPMENT SWM DRAINAGE DIVIDE MAP**



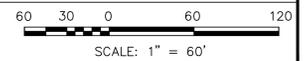
**LEGEND**

	IMPERVIOUS COVER
	DRAINAGE DIVIDES
	PROPERTY LINE
	HYDROLOGIC SOIL TYPE

**HYDROLOGIC SOIL GROUP NOTES:**

- HYDROLOGIC SOIL GROUPS ARE BASED ON ESTIMATES OF RUNOFF POTENTIAL. SOILS ARE ASSIGNED TO ONE OF FOUR GROUPS ACCORDING TO THE RATE OF WATER INFILTRATION WHEN THE SOILS ARE NOT PROTECTED BY VEGETATION, ARE THOROUGHLY WET, AND RECEIVE PRECIPITATION FROM LONG-DURATION STORMS.
- THE SOILS IN THE UNITED STATES ARE ASSIGNED TO FOUR GROUPS (A, B, C, AND D) AND THREE DUAL CLASSES (A/D, B/D, AND C/D). THE GROUPS ARE DEFINED AS FOLLOWS:
- GROUP A. SOILS HAVING A HIGH INFILTRATION RATE (LOW RUNOFF POTENTIAL) WHEN THOROUGHLY WET. THESE CONSIST MAINLY OF DEEP, WELL DRAINED TO EXCESSIVELY DRAINED SANDS OR GRAVELLY SANDS. THESE SOILS HAVE A HIGH RATE OF WATER TRANSMISSION.
- GROUP B. SOILS HAVING A MODERATE INFILTRATION RATE WHEN THOROUGHLY WET. THESE CONSIST CHIEFLY OF MODERATELY DEEP OR DEEP, MODERATELY WELL DRAINED OR WELL DRAINED SOILS THAT HAVE MODERATELY FINE TEXTURE TO MODERATELY COARSE TEXTURE. THESE SOILS HAVE A MODERATE RATE OF WATER TRANSMISSION.
- GROUP C. SOILS HAVING A SLOW INFILTRATION RATE WHEN THOROUGHLY WET. THESE CONSIST CHIEFLY OF SOILS HAVING A LAYER THAT IMPEDES THE DOWNWARD MOVEMENT OF WATER OR SOILS OF MODERATELY FINE TEXTURE OR FINE TEXTURE. THESE SOILS HAVE A SLOW RATE OF WATER TRANSMISSION.
- GROUP D. SOILS HAVING A VERY SLOW INFILTRATION RATE (HIGH RUNOFF POTENTIAL) WHEN THOROUGHLY WET. THESE CONSIST CHIEFLY OF CLAYS THAT HAVE A HIGH SHRINK-SWELL POTENTIAL, SOILS THAT HAVE A HIGH WATER TABLE, SOILS THAT HAVE A CLAYPAN OR CLAY LAYER AT OR NEAR THE SURFACE, AND SOILS THAT ARE SHALLOW OVER NEARLY IMPERVIOUS MATERIAL. THESE SOILS HAVE A VERY SLOW RATE OF WATER TRANSMISSION.
- IF A SOIL IS ASSIGNED TO A DUAL HYDROLOGIC GROUP (A/D, B/D, OR C/D), THE FIRST LETTER IS FOR DRAINED AREAS AND THE SECOND IS FOR UNDRAINED AREAS. ONLY THE SOILS THAT IN THEIR NATURAL CONDITION ARE IN GROUP D ARE ASSIGNED TO DUAL CLASSES.

**HANDY MART DIESEL PUMP EXPANSION PLAN POST-DEVELOPMENT SWM DRAINAGE DIVIDE MAP**



**1. Overview**

The project "Handy Mart Diesel Pump Expansion" is to be located north of the intersection of Handy Lane and Route 340 North - Lord Fairfax Highway, adjacent to Handy Mart in Clarke County, Virginia. This property is identified in the tax maps as property identification number 28-A-20G and consist of 1.72 acres. The site is currently zoned (CH) Commercial Highway. This project proposes a diesel pump expansion to the existing Handy Mart. Virginia DEQ determined this site to be grandfathered and to utilize the VA Stormwater Management Handbook (First Edition, 1999) regulations for quantity and quality until the expiration date of June 30, 2024. After this date, water quality and water quantity will need to be computed using the VRRM spreadsheet and 9VAC25-870-66. To meet SWM quantity we are proposing a dry pond south of the proposed site. This stormwater management plan uses the SCS unit hydrograph method TR-20 and TR-55 methods for time of concentration per Virginia DEQ comments. To meet water quality BMP requirements, we are proposing purchasing offsite water quality credits.

**2. Pre-development Conditions**

The existing pre-developed conditions modeled include drainage areas (DA #1, & 2). These areas were analyzed using grass cover in good condition and with a 100% karst reduction. The karst values used were 2 YR Storm = 0.33, 10 YR Storm = 0.43, and 100 YR Storm 0.50.

Study Point #1 has a drainage area of 7.63 acres.

**3. Post-development Conditions**

The post-development conditions for this site plan include drainage areas (DA #1, 1A, & 2). Drainage Area 2 utilizes a karst reduction of 85% as 3.64 acres remains undisturbed of the total 4.29 acres. The karst values used for this drainage area were 2 YR Storm = 0.36, 10 YR Storm = 0.48, and 100 YR Storm 0.59.

Study Point #1 has a drainage area of 7.59 Acres.

**4. Water Quality Control (BMP)**

The water quality requirement will be met by purchasing offsite nutrient credits, as demonstrated by the performance based criteria method.

The proposed Handy Mart Diesel Pump Expansion applicable area is 3.25 acres of which 47% is impervious post-development. As 47% impervious cover is greater than the Chesapeake Bay default value of 16%, situation 2 governs the BMP design. The relative pollutant removal requirement (RR) for the Proposed Handy Mart Diesel Pump Expansion is 0.63 lbs/yr.

**5. Water Quantity Control (SWM)**

For the Handy Mart Diesel Pump Expansion plan, the proposed dry pond will satisfy water quantity requirements of stream channel erosion and flooding. When detaining the two and ten-year storms with the proposed dry pond, the water quantity requirements are met as the post-development peak flows do not exceed the pre-development peak flows.

**5.1 Stream Channel Erosion**

Stream channel erosion was evaluated for the site.

For the proposed Handy Mart Diesel Pump Expansion plan, utilizing proposed dry pond to detain the two-year storm the peak flow is reduced to below the pre-development conditions for the entire site. See summary table below.

**2YR Storm Event**

Study Point #1	Pre-development Peak Flow	Post-development Peak Flow
Handy Mart Diesel Pump Expansion	0.96 cfs	0.94 cfs

**5.2 Flooding**

To meet the flooding requirements, the post-development peak flow rate for the ten-year storm event was reduced to below the pre-development peak flow rate. See summary table below.

**10YR Storm Event**

Study Point #1	Pre-development Peak Flow	Post-development Peak Flow
Handy Mart Diesel Pump Expansion Condition	3.69 cfs	3.06 cfs

**100 YR Storm Event**

Proposed Dry Pond	Top of Embankment	W.S.E	Freeboard
Handy Mart Diesel Pump Expansion	590.60'	588.64'	1.96'

**6. Summary**

The VA Stormwater Management Handbook (First Edition, 1999) regulations for quantity and quality were used. The water quality requirements will be met by purchasing offsite nutrient credits. The storm water requirements (stream channel erosion and flooding) were met by the proposed dry pond. HydroCAD software version 10, Build 22 was used to route the stormwater management facilities to verify SWM requirements were met.

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**HANDY MART DIESEL PUMP EXPANSION**  
SWM PLAN  
GREENWAY MAGISTERIAL DISTRICT  
CLARKE COUNTY, VA

Rev. No.	Date
4	05-21-2019



DATE: 06-11-2018

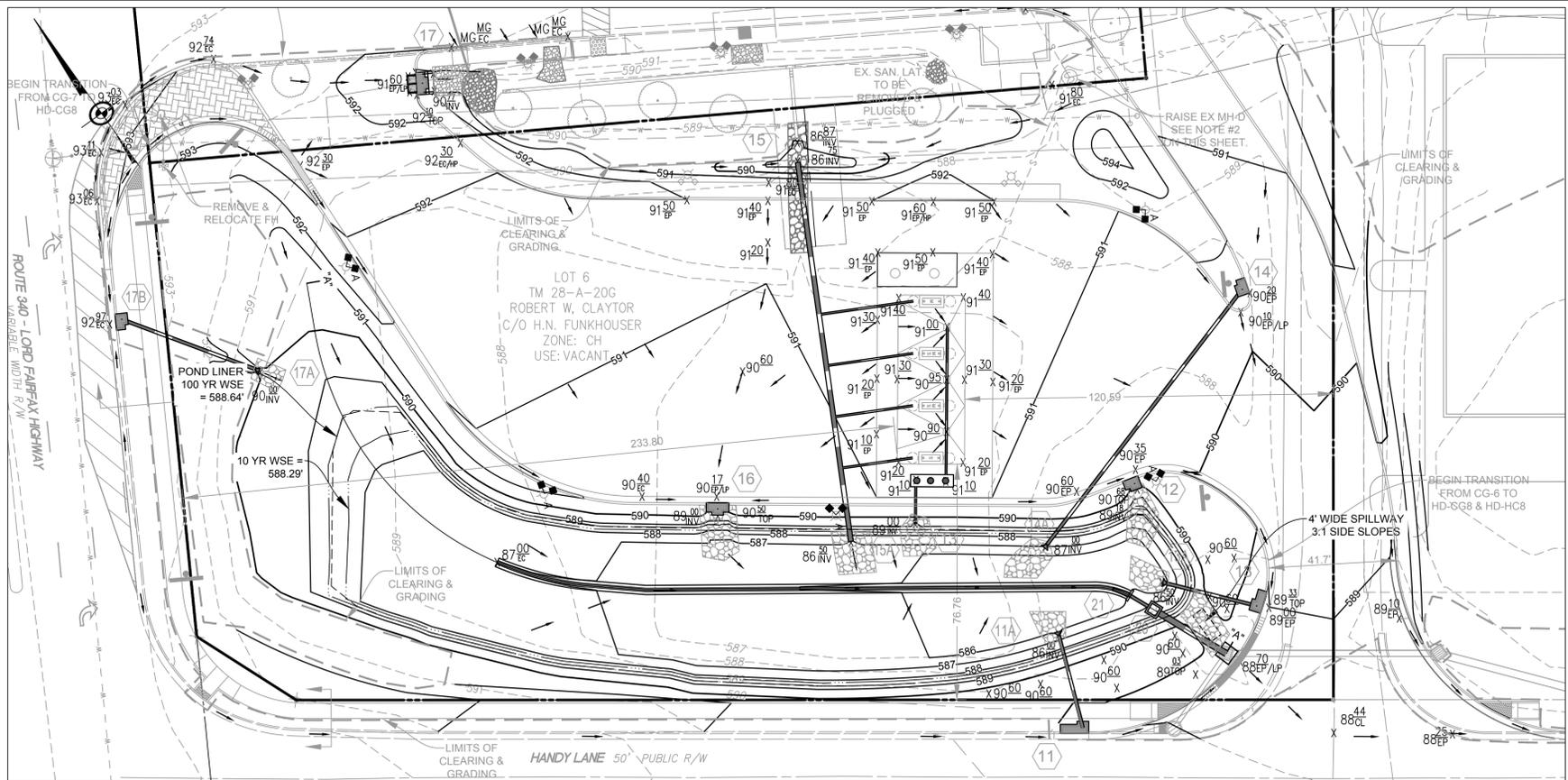
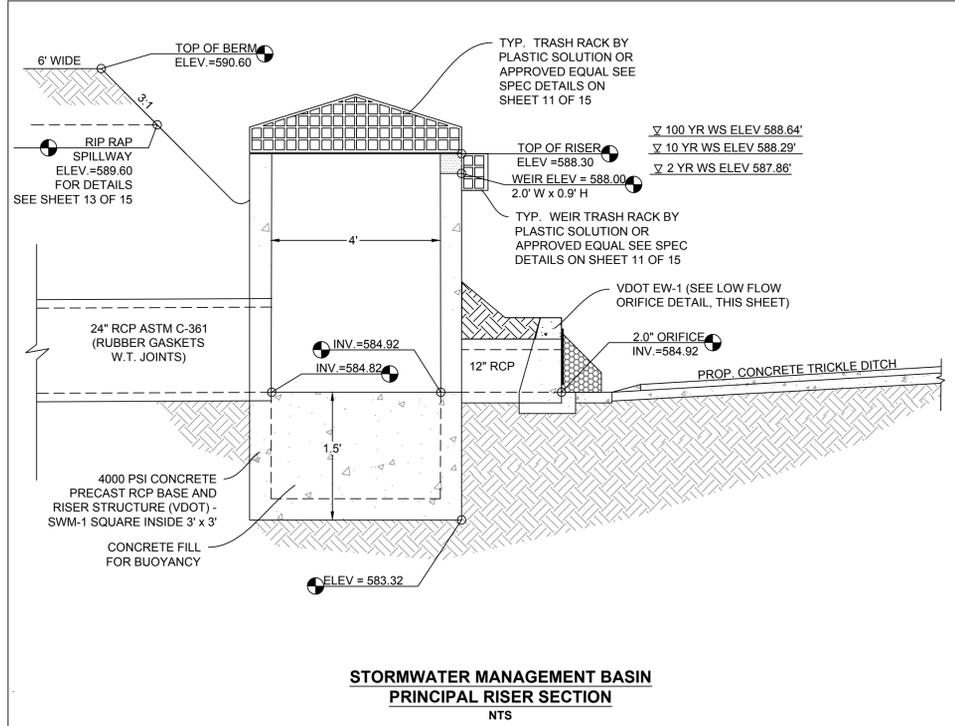
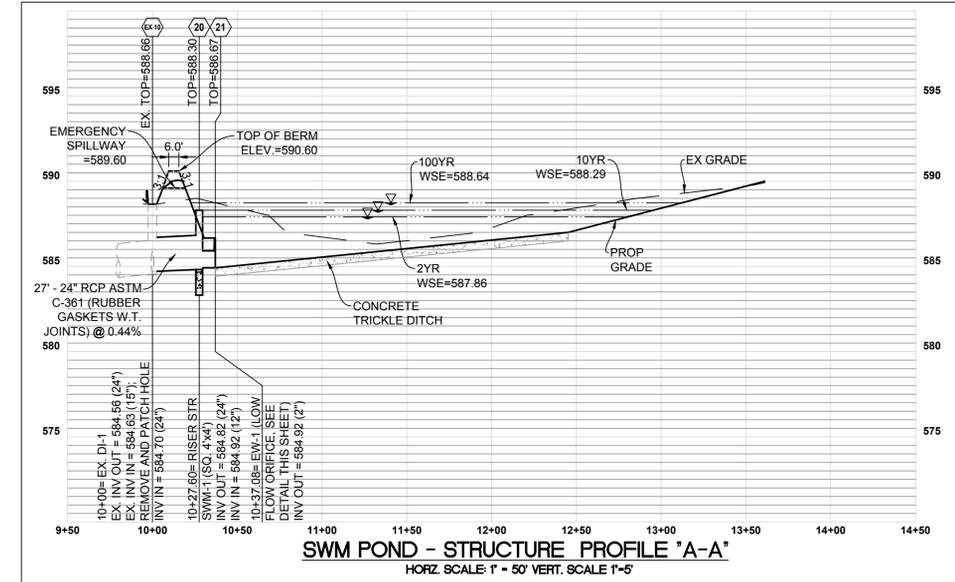
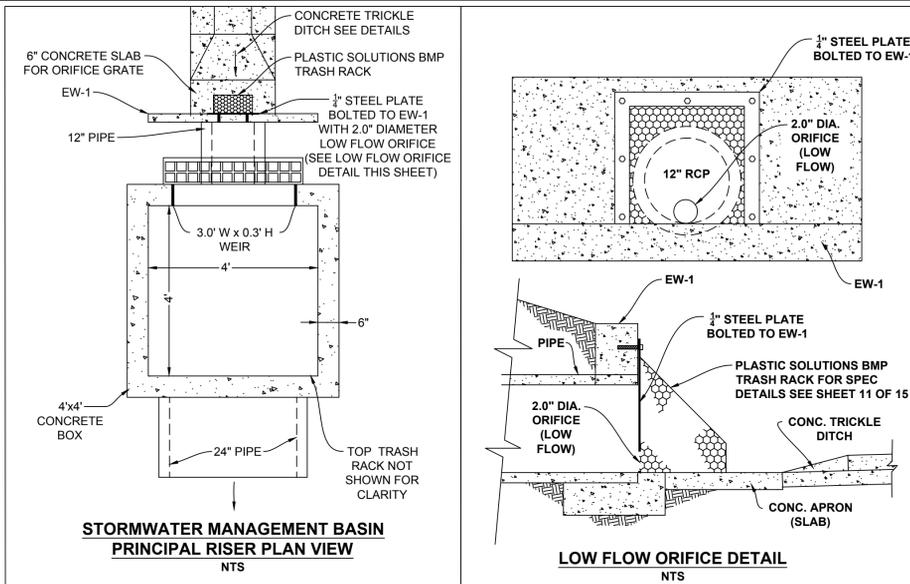
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DESIGNED BY: NTA

FILE NO. 4515P-2

SHEET 9 OF 15

DWG # 18-10

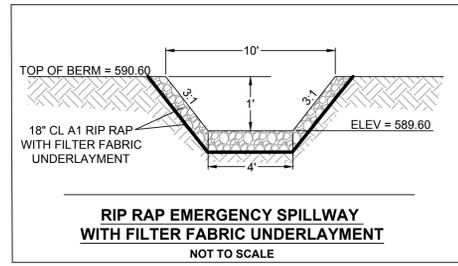
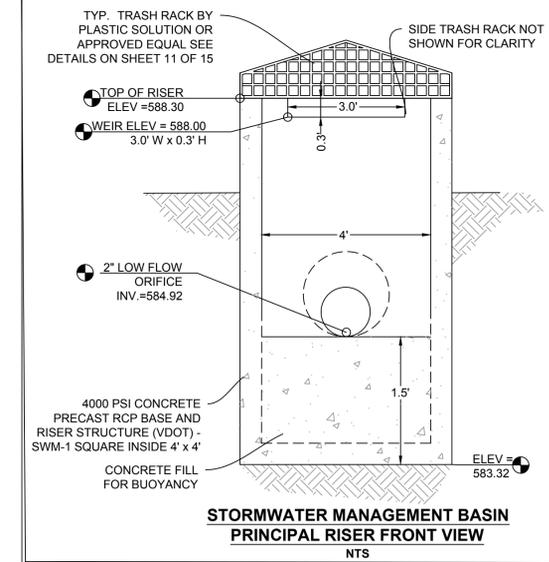


**SWM BASIN - PLAN VIEW**  
HORZ. SCALE: 1" = 25'

**Anti-Flotation Design - Riser Buoyancy Check**

**SWM Pond 1 - Primary Riser**

1. Volume of Water Displaced	5.00 ft. x 5.00 ft. x 4.98 ft.	=	124.50 cu.ft.
2. Weight of Water Displaced	124.50 cu.ft. x 62.40 lb/cu.ft.	=	7768.80 lbs
3. Volume of Concrete	5.00 ft. x 5.00 ft. x 1.50 ft.	=	37.50 cu.ft.
Concrete filled base	5.00 ft. x 5.00 ft. x 1.50 ft.	=	37.50 cu.ft.
Wall	-- ft. x 9.00 sq.ft. x 4.98 ft.	=	44.82 cu.ft.
minus Orifice 12" hole	-- ft. x 0.79 sq.ft. x 0.50 ft.	=	-0.40 cu.ft.
minus Culvert 24"	-- ft. x 3.14 sq.ft. x 0.50 ft.	=	-1.57 cu.ft.
minus Weir 3'x0.3'	-- ft. x 0.90 sq.ft. x 0.50 ft.	=	-0.45 cu.ft.
	Total Volume minus openings	=	79.91 cu.ft.
4. Weight of Concrete	79.91 cu.ft. x 150.00 lb/cu.ft.	=	11985.75 lbs



**GSE HD Smooth Geomembrane**

GSE HD is a smooth high density polyethylene (HDPE) geomembrane manufactured with the highest quality resin specifically formulated for flexible geomembranes. This product is used in applications that require excellent chemical resistance and endurance properties.

**PRODUCT DATA SHEET**

**[\*] AT THE CORE:**  
An HDPE geomembrane used in applications that require excellent chemical resistance and endurance properties.

**Product Specifications**

Test Property	Test Method	Frequency	Minimum Average Value				
			30 mil	40 mil	60 mil	80 mil	100 mil
Thickness, mil	ASTM D 5199	every roll	30	40	60	80	100
Lowest individual reading	ASTM D 5199		27	36	54	72	90
Density, g/cm <sup>3</sup>	ASTM D 1505	200,000 lb	0.940	0.940	0.940	0.940	0.94
Tensile Properties (each direction)	ASTM D 6683, Type IV	20,000 lb					
Strength at Break, lb/in-width	Dumbbell, 2.5mm		114	152	228	304	380
Strength at Yield, lb/in-width			63	84	126	168	210
Elongation at Break, %	G.L. 2.0 in		700	700	700	700	700
Elongation at Yield, %	G.L. 1.3 in		12	12	12	12	12
Tear Resistance, lb	ASTM D 1004	45,000 lb	21	28	42	56	70
Puncture Resistance, lb	ASTM D 4833	45,000 lb	54	72	108	144	180
Carbon Black Content, % (Range)	ASTM D 1603/4218	20,000 lb	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
Carbon Black Dispersion	ASTM D 5596	45,000 lb	Note <sup>1</sup>	Note <sup>1</sup>	Note <sup>1</sup>	Note <sup>1</sup>	Note <sup>1</sup>
Notched Constant Tensile Load, hr	ASTM D 5397, Appendix	200,000 lb	500	500	500	500	500
Oxidative Induction Time, mins	ASTM D 3895, 200°C, O <sub>2</sub> , 1 atm	>100	>100	>100	>100	>100	>100

**TYPICAL ROLL DIMENSIONS**

Roll Length <sup>2</sup> , ft	Roll Width <sup>3</sup> , ft	Roll Area, ft <sup>2</sup>
120	870	104,400
225	225	50,625
25,200	19,575	493,125

**NOTES:**

- <sup>1</sup>Dispersion only applies to mean spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.
- <sup>2</sup>Roll lengths and widths have a tolerance of +/- 1%.
- <sup>3</sup>GSE HD is available in rolls weighing approximately 3,900 lb.
- All GSE geomembranes have dimensional stability of +/- 2% when tested according to ASTM D 1204 and 11B or +/- 7°C when tested according to ASTM D 746.
- <sup>4</sup>Modified.

**30 MILL GSE HDPE GEO MEMBRANE LINER SPECIFICATION**

GSE is a leading manufacturer and marketer of geosynthetic lining products and services. We've built a reputation of reliability through our dedication to providing consistency of product, price and protection to our global customers.

Our commitment to innovation, our focus on quality and our industry expertise allow us the flexibility to collaborate with our clients to develop a custom, purpose-fit solution.

**[DURABILITY RUNS DEEP]** For more information on this product and others, please visit us at [GSEworld.com](http://GSEworld.com), call 800.435.2008 or contact your local sales office.

**GSE ENVIRONMENTAL**

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OFFICES IN: WINCHESTER, VA & MARTINSBURG, WV

**HANDY MART DIESEL PUMP EXPANSION**

SWM PLAN DETAILS

GREENWAY MAGISTERIAL DISTRICT  
CLARKE COUNTY, VA

Rev. No. 4 Date 05-21-2019

**COMMONWEALTH OF VIRGINIA**  
TUNG NHI ADHIKUSUMA  
Lic. No. 28715  
5/21/19  
PROFESSIONAL ENGINEER

DATE: 06-11-2018

SCALE: 1" = 25'

DESIGNED BY: NTA

FILE NO. 4515P-2

SHEET 10 OF 15

DWG # 18-10

### StormRax Plastic Solution Specifications

**SCOPE**  
This Specifications describes HDPE Trash Racks and their use in storm water management ponds and basins.

**MATERIAL**  
The resin used for Structural Plastic Trash is glass reinforced HDPE (High Density Polyethylene). Virgin material must be used to ensure that all of the expected mechanical properties are maintained throughout the life of the Trash Rack. The added rigidity provided by the glass must meet maximum deflection values as shown below. In addition, the glass content must not cause the material to become brittle even in cold temperatures (-0 degrees F). The grid used to manufacture Trash Racks must conform to the following mechanical properties:

Loading Rating: 2030 lbs./sq. ft.  
Ultimate Yield Strength: 1855 lbs./sq. ft.  
Maximum Deflection (@90 degrees F): <2.00 inches (over a 22" x 22" area)

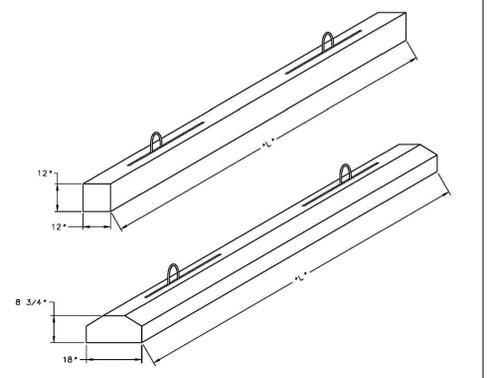
**UV CONSIDERATIONS**  
Due to the fact that Trash Racks are continually exposed to radiation, UV protection must be incorporated into the resin to prevent premature degradation of the plastic material. Therefore, the UV protection must meet or exceed ASTM D2565-99

**COLORANT CONSIDERATIONS**  
The colorant must be homogeneous and must not fade, run, discolor or deteriorate when exposed to sunlight and/or the elements for the life of the Trash Rack.

**MOUNTING CONSIDERATIONS**  
Each Trash Rack design must account for both the physical and hydraulic factors that the Trash Rack is expected to see during its intended product life. Mounting locations must be determined by taking into account the hydraulic dynamic force factors for each individual application. Failure to use the pre-drilled holes (as supplied by the manufacturer) could result in product breakdown, malfunction and/or collapse. All mounting hardware (3/8" x 3" steel anchor bolt) is included with each rack.

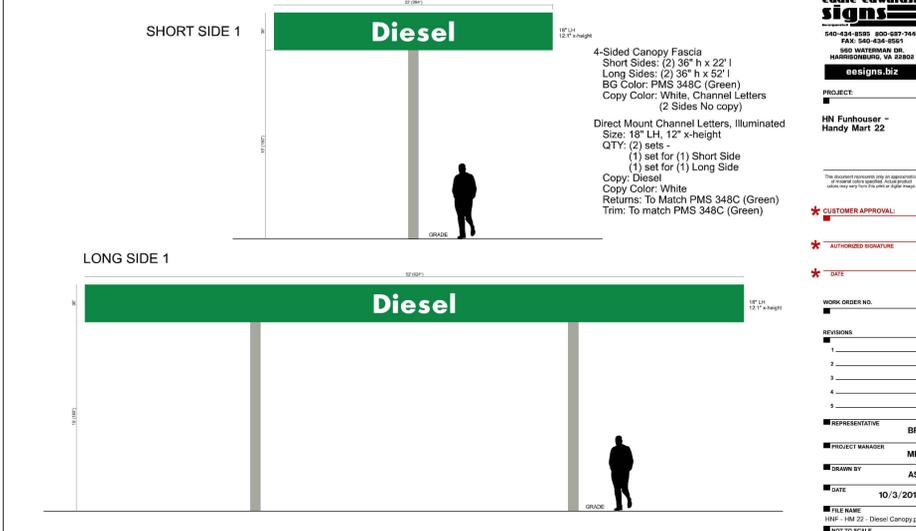
**PHYSICAL PROPERTIES**  
Grid material is 1 1/2" thick with 5/8" webbing 6" on center, producing a 4 3/4" square opening. Anti-vortex plates must be available for whenever hydraulic calculations dictate their use. Access door(s) must be available for easier access to larger structure/stairs. All metal stiffeners must be made from steel and powder-coated to prevent corrosion.

TANK SIZE GALLONS	QTY	L*	APPROX. WEIGHT EACH
4"-600	2	12'	1,800 LBS
4"-1,000	2	12'	1,800 LBS
4"-1,500	2	16'	2,400 LBS
6"-1,500	2	12'	1,800 LBS
6"-2,000	2	12'	1,800 LBS
6"-3,000	2	16'	2,400 LBS
6"-4,000	2	16'	2,400 LBS
6"-5,000	4	12'	1,800 LBS
6"-6,000	4	16'	2,400 LBS
6"-8,000	4	16'	2,400 LBS
8"-2,000	2	12'	1,800 LBS
8"-3,000	2	12'	1,800 LBS
8"-4,000	2	12'	1,800 LBS
8"-5,000	2	16'	2,400 LBS
8"-6,000	2	16'	2,400 LBS
8"-7,000	4	12'	1,800 LBS
8"-8,000	4	12'	1,800 LBS
8"-9,000	2	12'	1,800 LBS
8"-10,000	4	16'	2,400 LBS
8"-11,000	4	16'	2,400 LBS
8"-12,000	4	12'	1,800 LBS
8"-13,000	2	16'	2,400 LBS
8"-14,000	2	12'	1,800 LBS
8"-15,000	6	16'	2,400 LBS
10"-10,000	2	22'	3,000 LBS
10"-11,000	2	22'	3,000 LBS
10"-12,000	2	22'	3,000 LBS
10"-13,000	4	14'	1,900 LBS
10"-14,000	4	14'	1,900 LBS
10"-15,000	4	14'	1,900 LBS
10"-20,000	4	18'	2,400 LBS
10"-22,000	4	22'	3,000 LBS
10"-25,000	4	14'	1,900 LBS
10"-30,000	6	18'	2,400 LBS
10"-35,000	2	18'	2,400 LBS
10"-40,000	8	18'	2,400 LBS



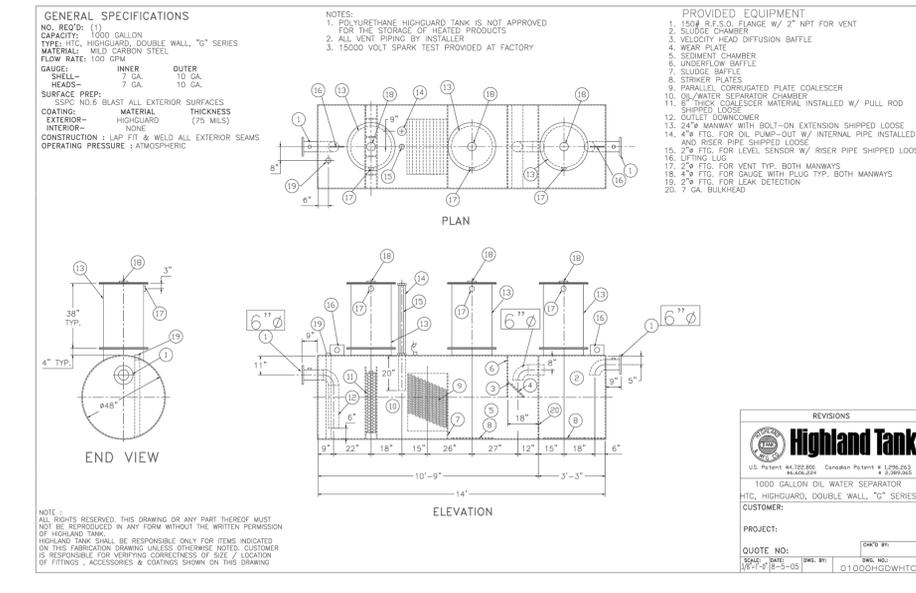
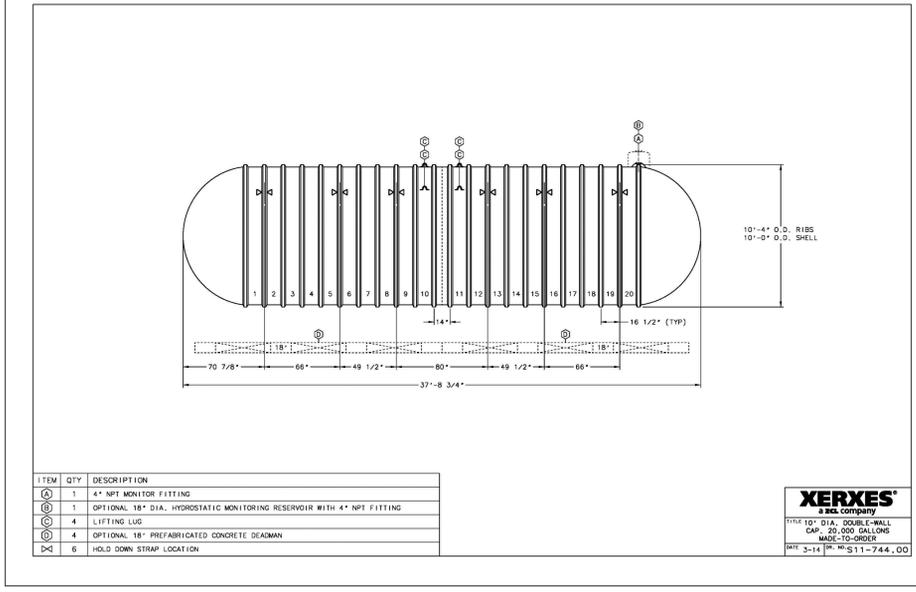
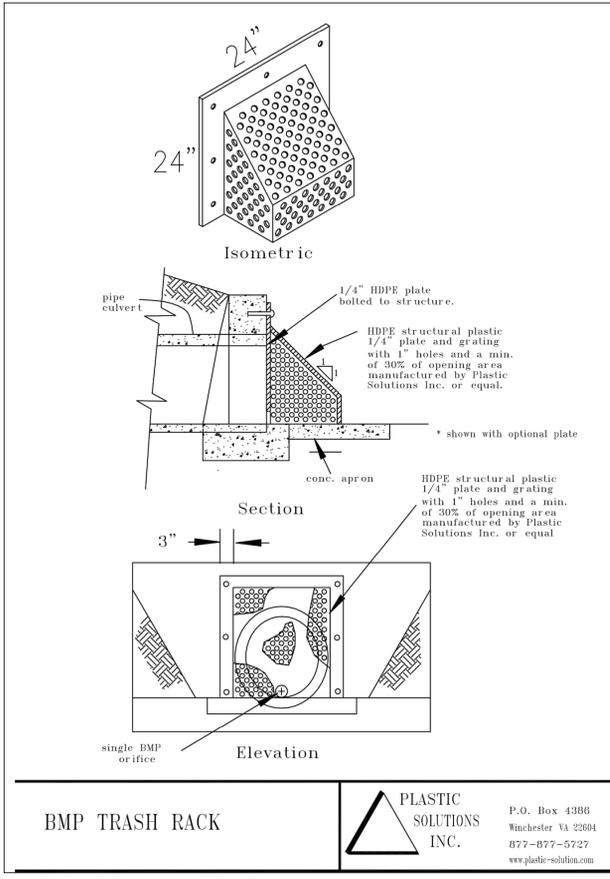
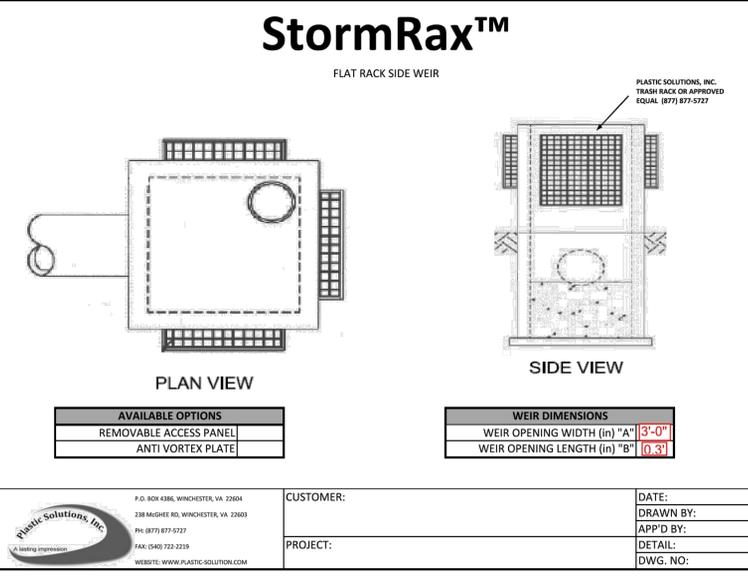
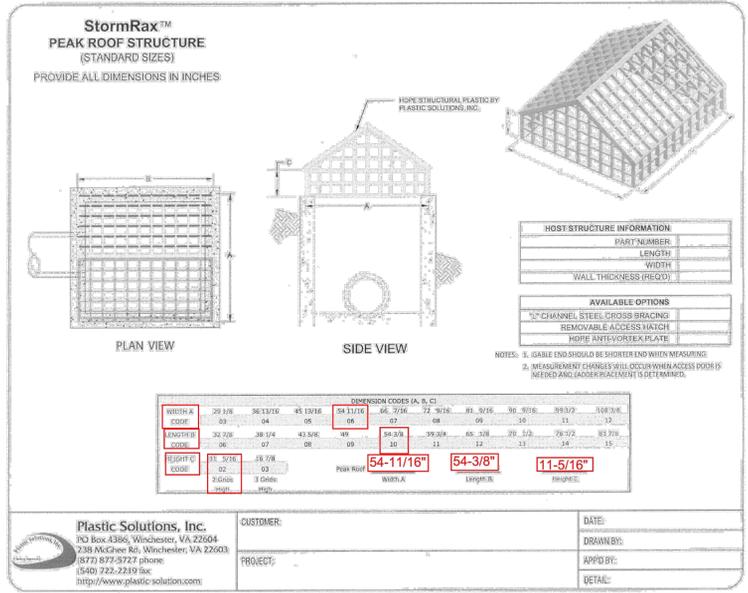
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- XERXES DEADMEN ARE ENGINEERED AND DESIGNED TO BE USED WITH XERXES TANKS.  
- IN MULTIPLE TANK INSTALLATIONS, EACH TANK REQUIRES ITS OWN SET OF DEADMEN.  
- FOR CAST IN PLACE OR DEADMAN CONSTRUCTED OFF SITE, REFER TO XERXES INSTALLATION MANUAL AND OPERATING GUIDELINES FOR PROPER SIZING AND ANCHOR POINT SPECIFICATIONS.

**XERXES** Inc. company  
TITLE: XERXES PRECAST DEADMEN  
DATE: 1-14 DR. NO: S11-376\_02



**eddie edwards signs**  
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PROJECT: HN Furhouser - Handy Mart 22  
DATE: 10/3/2018



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SWM RISER, CANOPY & TANKS DETAILS  
**HANDY MART DIESEL PUMP EXPANSION**  
GREENWAY MAGISTERIAL DISTRICT  
CLARKE COUNTY, VA

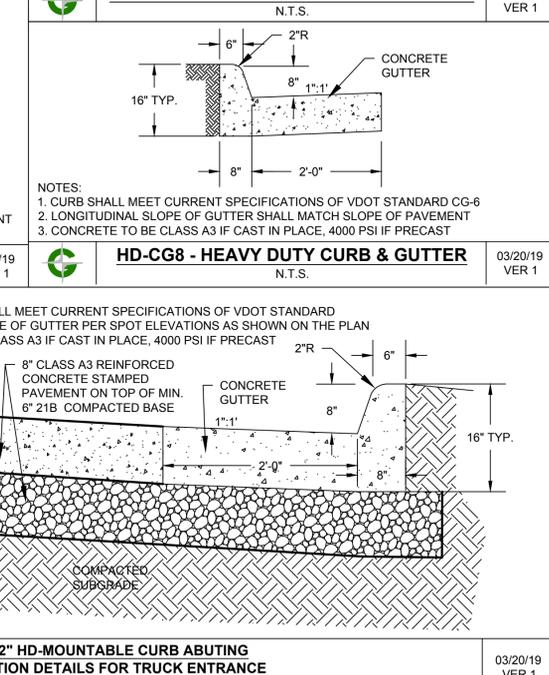
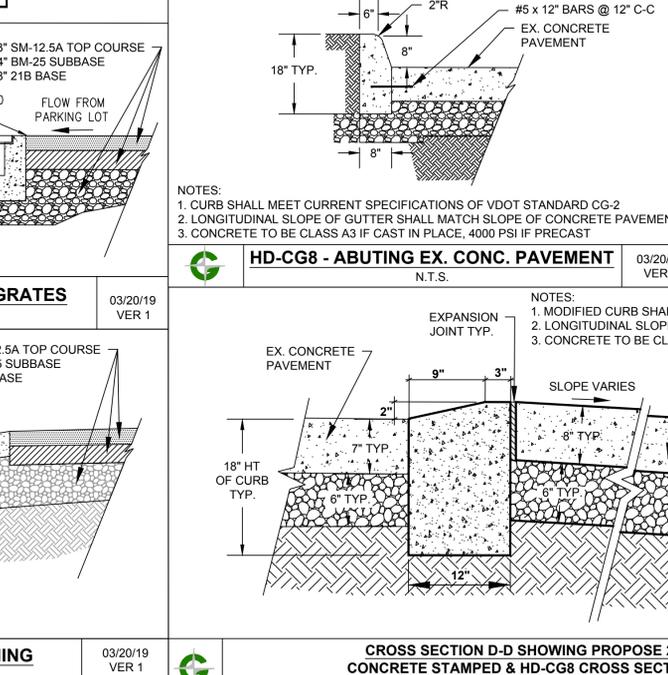
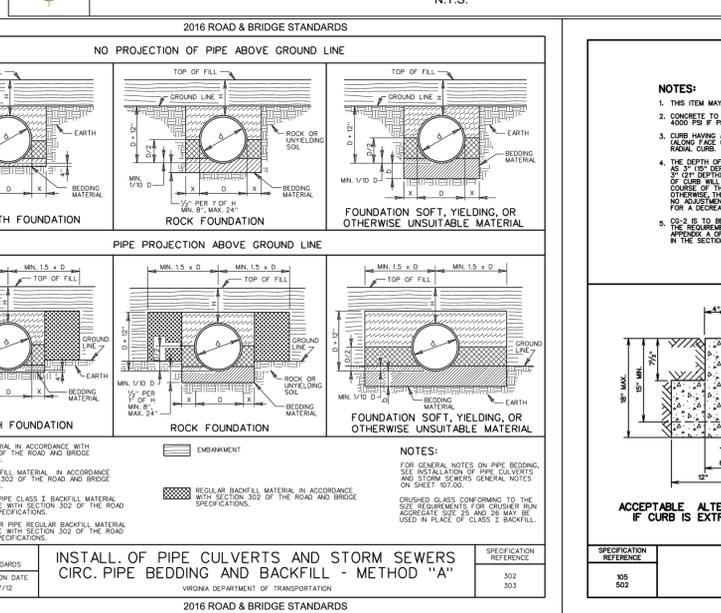
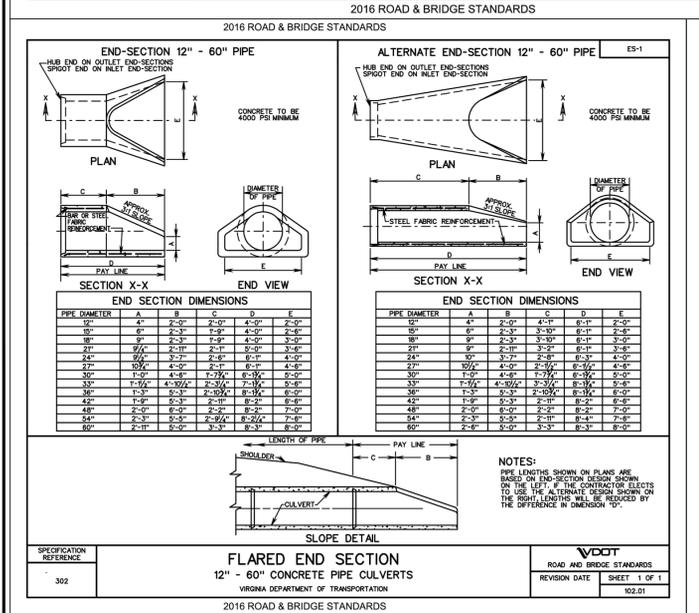
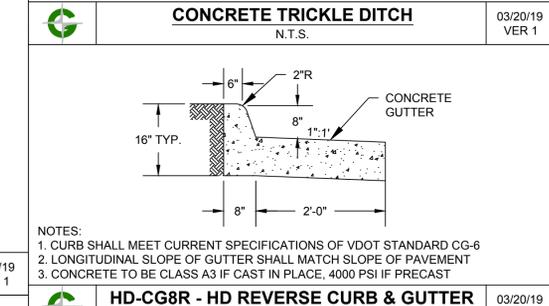
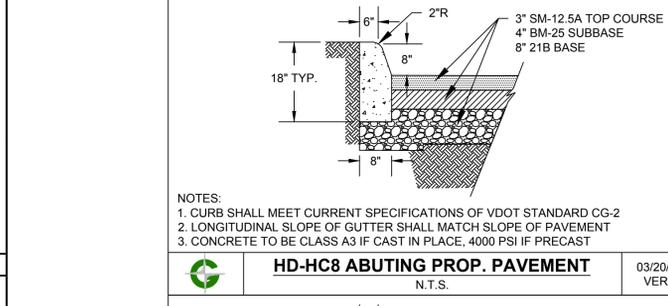
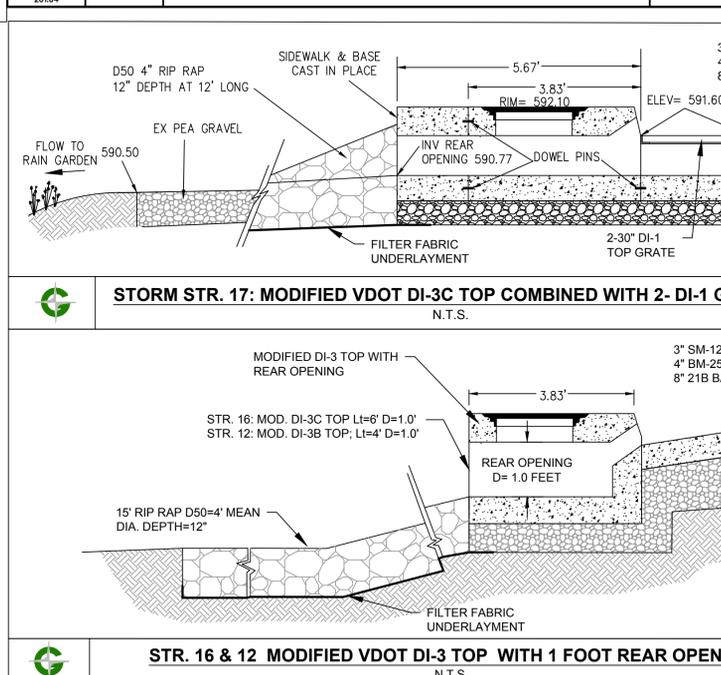
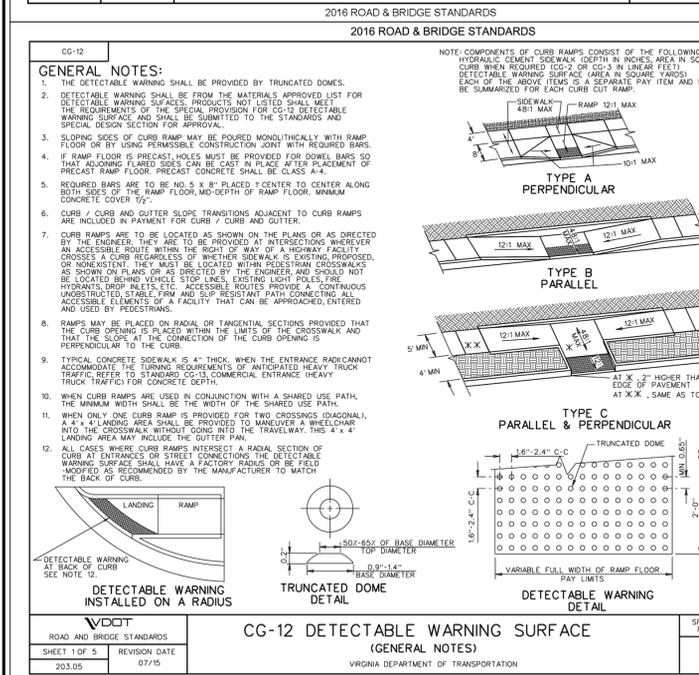
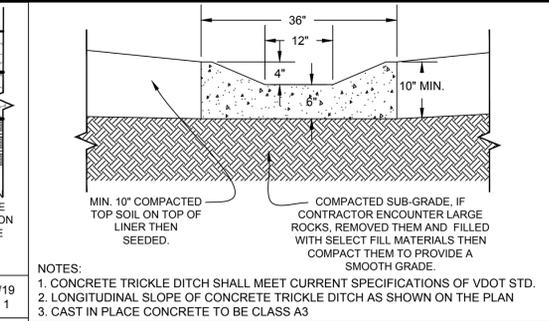
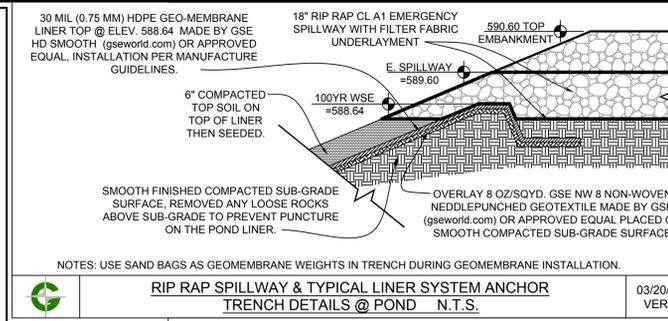
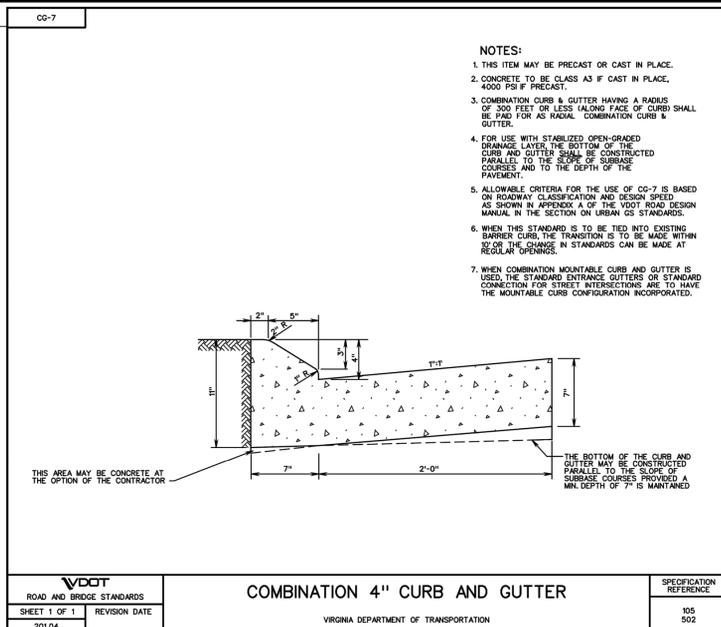
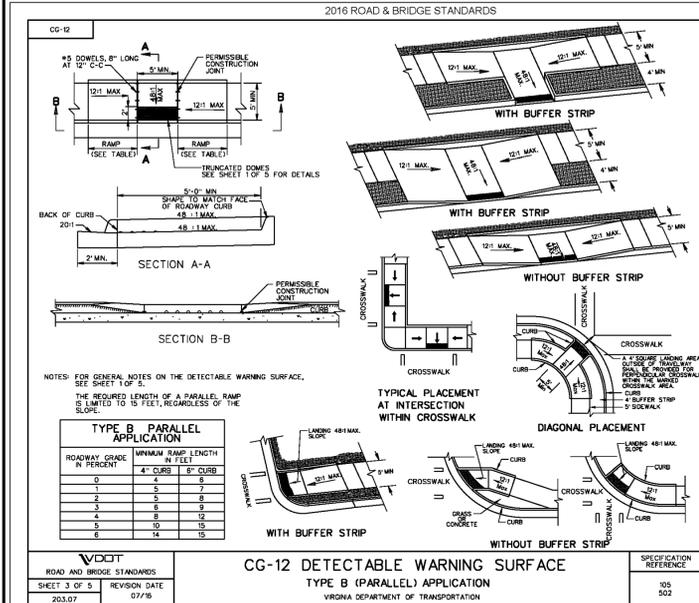
Rev. No. 3 Date 05-21-2019

DATE: 06-11-2018  
SCALE: N/A  
DESIGNED BY: NTA  
FILE NO. 4515P-2  
SHEET 11 OF 15  
DWG # 18-10

COMMONWEALTH OF VIRGINIA  
TUNG NHI ADHUSUM  
Lic. No. 28715  
5/21/19  
PROFESSIONAL ENGINEER



NOTE: ALL PROPOSED CG-12's SHALL BE 7" TO ACCOMMODATE TRUCK TRAFFIC (HEAVY DUTY) N.T.S.



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OFFICES IN WINCHESTER, VA & MARTINSBURG, WV

CONSTRUCTION DRAWING DETAILS

**HANDY MART DIESEL PUMP EXPANSION**

GREENWAY MAGISTERIAL DISTRICT  
CLARKE COUNTY, VA

Rev. No. 4 Date 05-21-2019

DATE: 06-11-2018

SCALE: N/A

DESIGNED BY: NTA

FILE NO. 4515F-2

SHEET 13 OF 15

DWG # 18-10

DATE: 06-11-2018

SCALE: N/A

DESIGNED BY: NTA

FILE NO. 4515F-2

SHEET 13 OF 15

DWG # 18-10

**GENERAL CONDITIONS - COUNTY CODE COMPLIANT LANDSCAPE PLAN**

**SCOPE OF WORK**

THE LANDSCAPE CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR AND EQUIPMENT TO COMPLETE ALL LANDSCAPE WORK AS SHOWN ON THE PLANS AND SPECIFICATIONS.

NOTE: IF CONTRACTOR BIDS ACCORDING TO THE PLANT LIST, HE/SHE SHOULD THOROUGHLY CHECK THE PLANT LIST QUANTITIES WITH THE SYMBOLS DRAWN ON THE PLAN. TO BE SURE THERE ARE NO DISCREPANCIES. IF THERE IS A DISCREPANCY BETWEEN THE DRAWING AND THE LIST ON THE PLANS, THE DRAWING TAKES PRECEDENCE.

**STANDARDS**

ALL PLANT MATERIAL SHALL COMPLY WITH THE AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1-1996). ALL PLANTS SHALL BE WELL FORMED, VIGOROUS, HEALTHY AND FREE OF DISEASE, SUNSCALD, WINDBURN, AND INSECTS OR THEIR EGGS.

**SUBSTITUTIONS: PRE-BID**

IT IS THE LANDSCAPE CONTRACTOR'S RESPONSIBILITY TO MAKE EVERY REASONABLE EFFORT TO FIND THE PLANTS SPECIFIED BY THE LANDSCAPE ARCHITECT. THE LANDSCAPE CONTRACTOR MAY OFFER SUBSTITUTIONS TO THE LANDSCAPE ARCHITECT FOR HIS/HER CONSIDERATION. THE LANDSCAPE CONTRACTOR WILL NOTIFY THE LANDSCAPE ARCHITECT IF THERE ARE KNOWN DISEASES OR INSECT RESISTANT SPECIES THAT CAN BE SUBSTITUTED FOR A SELECTED PEST-PRONE PLANT. THE CONTRACTOR SHALL SUBMIT A BASE BID AS PER PLAN PLUS PRICE CLARIFICATIONS FOR ALL RECOMMENDED SUBSTITUTIONS.

**SUBSTITUTIONS: POST-BID**

IT IS THE INTENT TO ELIMINATE POST-BID SUBSTITUTIONS. HOWEVER, IN THE EVENT THAT THE CONTRACT MATERIAL HAS BECOME UNAVAILABLE, AN APPROPRIATE SUBSTITUTION MUST BE APPROVED BY THE OWNER'S REPRESENTATIVE.

**UTILITIES AND UNDERGROUND FEATURES**

THE LANDSCAPE CONTRACTOR SHALL NOTIFY UTILITY COMPANIES AND/OR THE GENERAL CONTRACTOR IN ADVANCE OF CONSTRUCTION TO LOCATE UTILITIES.

TREES AND/OR SHRUBS SHALL NOT BE PLACED WITHIN FCSA EASEMENTS

IF THERE IS A CONFLICT WITH UTILITIES AND THE PLANTING, THE LANDSCAPE ARCHITECT / DESIGNER SHALL BE RESPONSIBLE FOR RELOCATING PLANTS PRIOR TO THE PLANTING PROCESS. ANY COST DUE TO RELOCATING AFTER PLANTING SHALL BE BORNE BY THE OWNER. IF PLANTS ARE TO BE INSTALLED IN AREAS THAT SHOW OBVIOUS POOR DRAINAGE, AND THE PLANTS ARE INAPPROPRIATE FOR THAT CONDITION, THE LANDSCAPE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT AND OWNER. IF THEY DEEM NECESSARY, THE PLANTS SHALL BE RELOCATED. THE CONTRACT SHALL BE ADJUSTED TO ALLOW FOR DRAINAGE CORRECTION AT A NEGOTIATED COST, OR THE PLANT SELECTION MODIFIED BY THE LANDSCAPE ARCHITECT / DESIGNER TO ACCOMMODATE THE POOR DRAINAGE.

**WARRANTY**

THE STANDARD WARRANTY IS FOR ONE (1) YEAR PERIOD, EXCLUDING BULBS, SOD AND ANNUALS, COMMENCING ON THE DATE OF INITIAL ACCEPTANCE. ALL PLANTS SHALL BE ALIVE AND IN SATISFACTORY GROWTH AT THE END OF THE GUARANTEE PERIOD. ANY MATERIAL THAT IS 25% DEAD OR MORE SHALL BE CONSIDERED DEAD AND MUST BE REPLACED AT NO CHARGE. A TREE SHALL BE CONSIDERED DEAD WHEN THE MAIN LEADER HAS DIED BACK, OR 25% OF THE CROWN IS DEAD. REPLACEMENTS SHALL BE MADE DURING THE NEXT PLANTING PERIOD. REPLACEMENTS SHALL BE OF THE SAME TYPE, SIZE AND QUALITY AS ORIGINAL SPECIES UNLESS OTHERWISE NEGOTIATED.

**INSPECTION**

A. PLANTS MAY BE SUBJECT TO INSPECTION AND APPROVAL BY THE OWNER OR OWNER'S REPRESENTATIVE AT THE PLACE OF GROWTH OR HOLDING YARD FOR CONFORMITY TO SPECIFICATION REQUIREMENTS AS TO QUALITY, SIZE AND VARIETY.

B. PLANTS DAMAGED IN HANDLING OR TRANSPORTATION CAN BE REJECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.

C. STATE NURSERY INSPECTION CERTIFICATES SHALL BE FURNISHED TO THE LANDSCAPE ARCHITECT UPON REQUEST.

**STANDARDS**

A. PLANTS WILL BE IN ACCORDANCE WITH THE CURRENT (ANSI Z60.1-1996) STANDARDS AND CONFORM IN GENERAL TO REPRESENTATIVE SPECIES.

**B. BALLED AND BURLAPPED (B&B)**

1. BALLED AND BURLAPPED PLANTS SHALL BE DUG WITH FIRM ROOT BALLS FREE OF NOXIOUS WEEDS. THERE SHOULD BE NO EXCESS SOIL ON TOP OF THE ROOTBALL OR AROUND THE TRUNK
2. BALL SIZES SHALL BE IN ACCORDANCE WITH ANLA STANDARDS.
3. CALIPER AND HEIGHT MEASUREMENT: IN SIZE GRADING B&B SINGLE TRUNK TREES, CALIPER SHALL TAKE PRECEDENCE OVER HEIGHT. CALIPER OF THE TRUNK SHALL BE TAKEN 6" ABOVE GROUND LEVEL (UP TO AND INCLUDING 3" CALIPER SIZE) AND 12" ABOVE THE GROUND LEVEL FOR LARGER TREES. FOR MULTIPLE-TRUNK TREES, HEIGHT MEASUREMENT SHALL TAKE PRECEDENCE OVER CALIPER.

**C. CONTAINER - GROWN STOCK**

1. THE SIZE OF CONTAINER-GROWN SHRUBS IS MEASURED BY HEIGHT AND WIDTH OF THE PLANT. CONTAINER-GROWN TREES ARE MEASURED BY THE SAME STANDARDS LISTED IN B.3. ABOVE. THE ROOT SYSTEM OF CONTAINER-GROWN PLANTS SHALL BE WELL DEVELOPED AND WELL DISTRIBUTED THROUGHOUT THE CONTAINER.
2. ALL CONTAINER-GROWN TREES AND SHRUBS THAT HAVE CIRCLING (GIRDLING) AND MATTED ROOTS SHALL BE TREATED IN THE FOLLOWING MANNER PRIOR TO PLANTING: SEPARATE THE ROOTS BY HAND, UNTANGLING SO CIRCLING ROOTS WILL NOT DAMAGE FUTURE OF THE PLANT. SEE PLANTING PROCEDURES FOR ALL CONTAINER-GROWN TREES & SHRUBS IN THIS SECTION.
3. ALL CONTAINER-GROWN PLANTS SHOULD BE GROUPED AND WATERED DAILY UNTIL THEY ARE PLANTED IN THE LANDSCAPE, THE SOIL SHALL BE KEPT MOIST WITH THE EQUIVALENT OF ONE-INCH OF RAINFALL PER WEEK.

D. PRUNING SHALL BE DONE BEFORE PLANTING OR DURING THE PLANTING OPERATION.

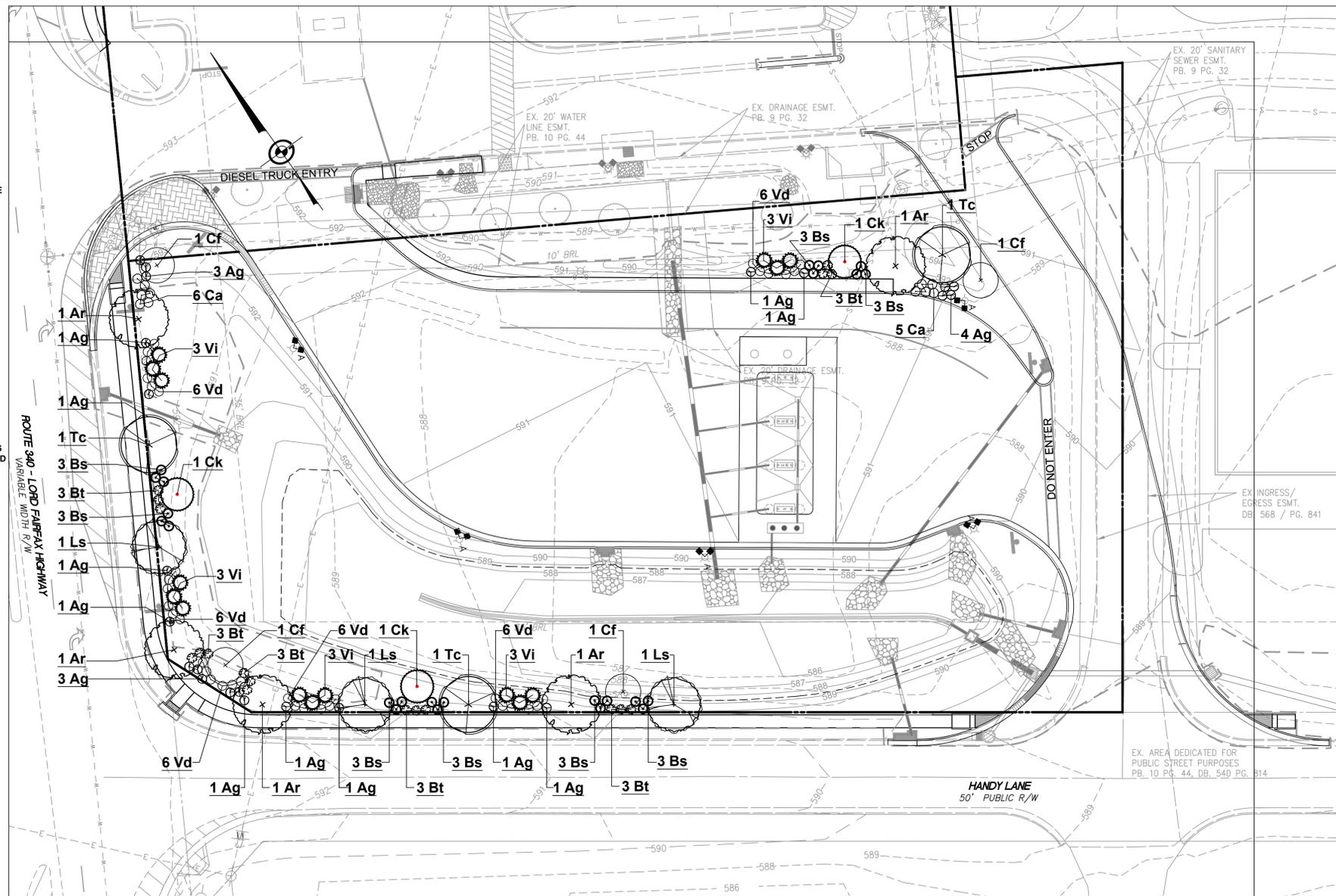
E. ALL PLANT MATERIAL IN TRANSIT SHALL BE COVERED TO KEEP MATERIAL FROM DRYING OUT. THE COVERING SHALL COMPLY WITH THE STATE AND LOCAL LAWS PERTAINING TO THE TRANSPORT OF MATERIALS.

F. TREES SHALL BE PLACED IN AN UPRIGHT POSITION WITH THE ROOT BALL COVERED BY MULCH AND KEPT MOIST. TREES AND SHRUBS SHOULD NOT BE LEFT ON SITE UNPLANTED FOR MORE THAN 24-HOURS WITHOUT ADEQUATE WATER TO INSURE ROOT SURVIVAL.

**NOTES:**

1) ALL PLANTING SHALL CONFORM WITH CLARKE COUNTY ZONING ORDINANCE.

2) ANY PLANT SUBSTITUTIONS MUST BE APPROVED IN WRITING BY CLARKE COUNTY.



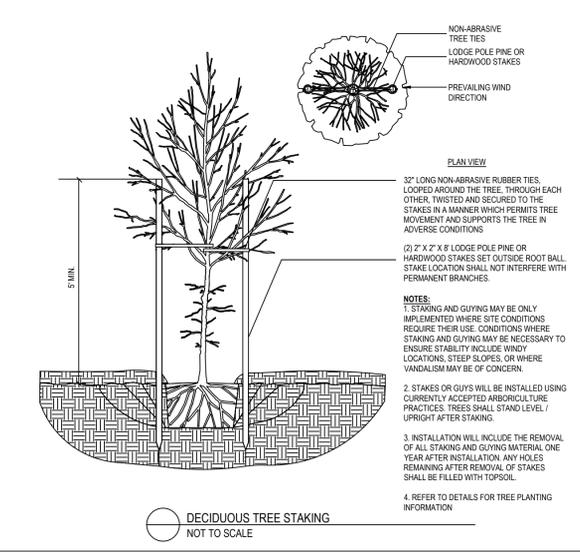
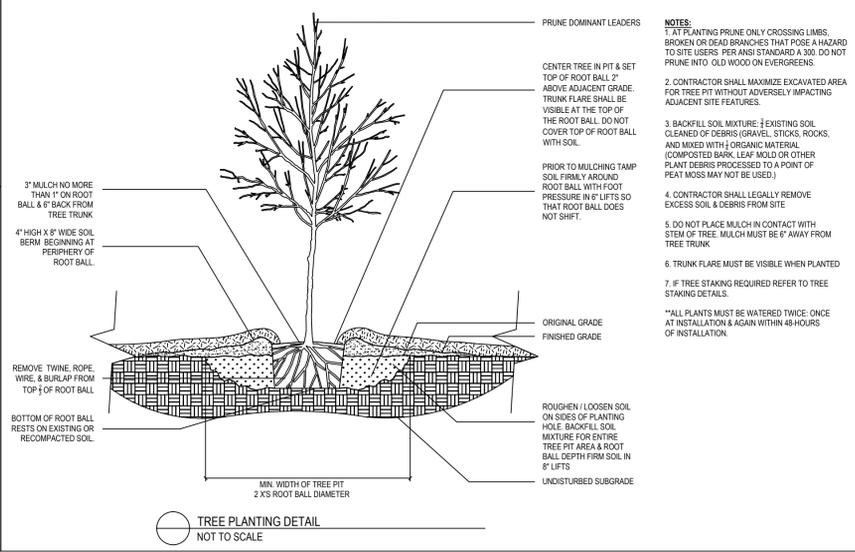
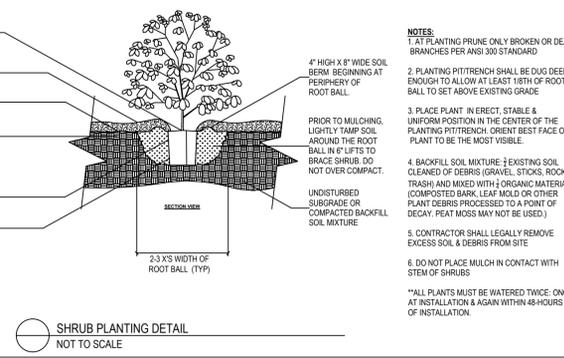
**TREES, EVERGREEN AND SHRUBS SCHEDULES**

ABB	BOTANICAL NAME	COMMON NAME	QUANTITY	SIZE
<b>PROPOSED LARGE TREE CANOPY TOTAL:</b>				
Ar	Acer rubrum "October Glory"	October Glory Maple	5	2" cal., B&B
Ls	Liquidambar styraciflua	Sweetgum	3	2" cal., B&B
Tc	Tilia cordata	Littleleaf Linden	3	2" cal., B&B
<b>PROPOSED SMALL TREE CANOPY TOTAL:</b>				
Cf	Cornus florida	Flowering Dogwood	4	6', cont., B&B
Ck	Cornus kousa	Kousa Dogwood	3	6', cont., B&B
<b>PROPOSED EVERGREEN TREE CANOPY TOTAL:</b>				
Vi	Juniperus virginiana 'Idylwild'	Idylwild Juniper	15	6', cont., B&B
<b>PROPOSED SHRUB TOTAL:</b>				
Ag	Azalea girard 'Claire Marie'	Claire Marie Azalea	23	18", cont.
Bt	Berberis thunbergii 'Gentry'	Royal Burgundy Barberry	18	18", cont.
Bs	Buxus sempervirens	Boxwood	24	18", cont.
Ca	Clethra alnifolia	Summersweet Clethra	11	18", cont.
Vd	Viburnum davidii	David Viburnum	36	18", cont.

**BUFFER REQUIREMENTS : SECTION 6-H-10-C**

ROUTE 340 BUFFER: 198.4 FEET WITH 10' WIDE BUFFER = 1,984 SF		HANDY LANE (PUBLIC RW) BUFFER 358.5 FEET WITH 10' WIDE BUFFER = 3,585 SF	
REQUIRED	PROVIDED	REQUIRED	PROVIDED
4 LG. CANOPY	4	7 LG. CANOPY	7
2 SM. CANOPY	2	4 SM. CANOPY	5
4 EVERGREEN	6	7 EVERGREEN	9
40 SHRUBS	43	72 SHRUBS	72

**PARKING LOT REQUIREMENTS : NOT APPLICABLE (no additional parking)**



151 Windy Hill Lane  
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**LANDSCAPE PLAN**

**HANDY MART DIESEL PUMP EXPANSION**

GREENWAY MAGISTERIAL DISTRICT  
CLARKE COUNTY, VA

Rev. No. 3 Date 05-21-2019

DATE: 06-11-2018

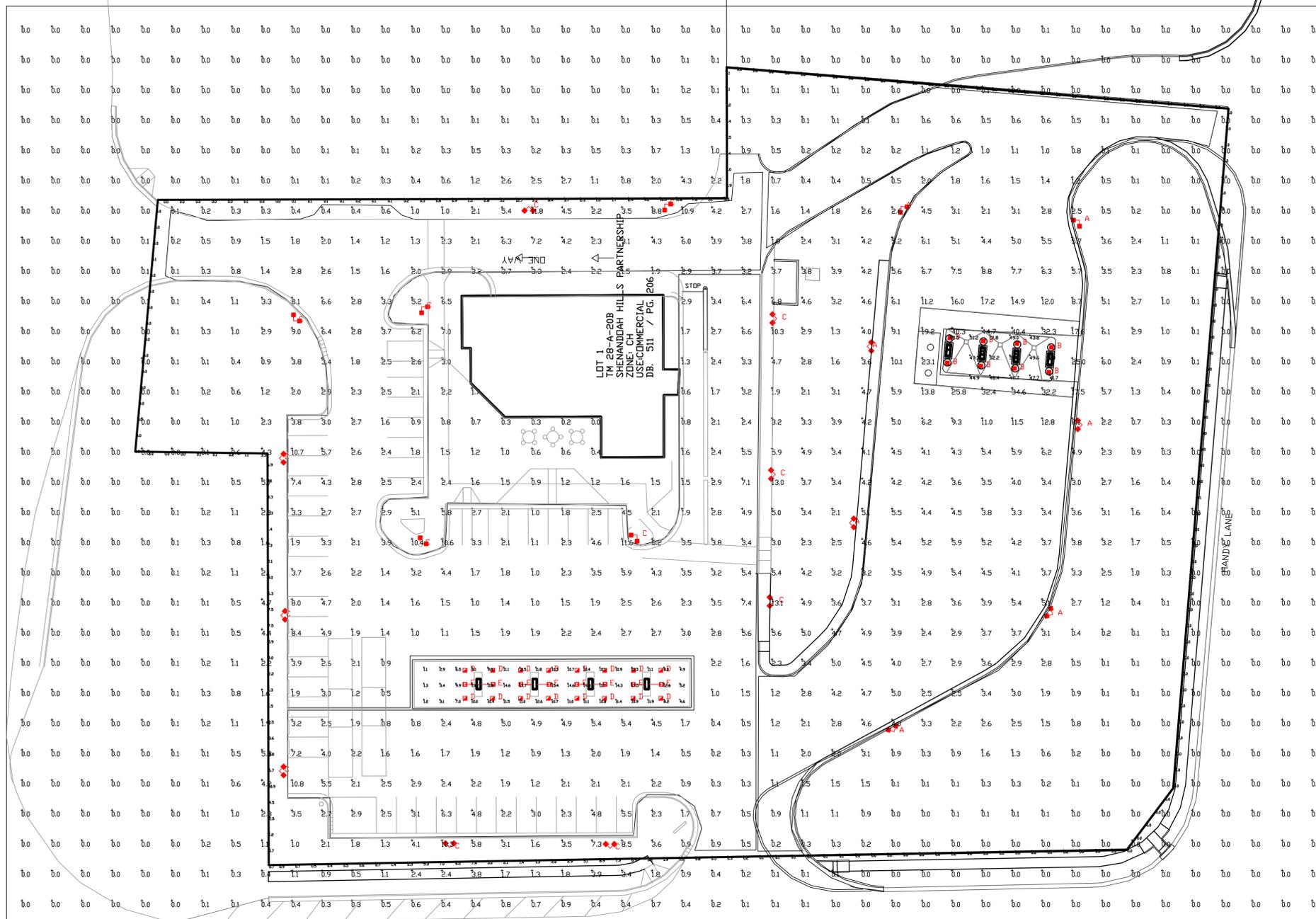
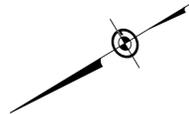
SCALE: 1" = 25'

DESIGNED BY: NTA

FILE NO. 4515F-2

SHEET 14 OF 15

DWG # 18-10



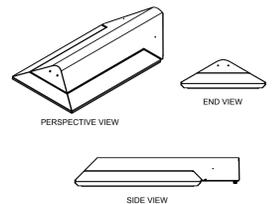
SLM



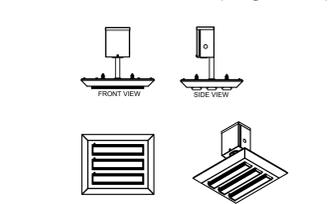
SCV

Click image to open Product Page

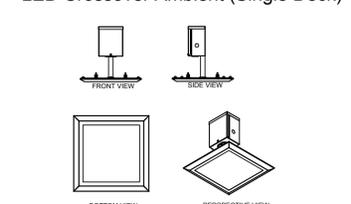
XAM  
LED Crossover Area Light



CRO2 FO  
LED Crossover Focus (Single Deck)



CRO2-S-50  
LED Crossover Ambient (Single Deck)



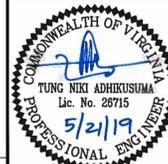
Symbol	Qty	Label	Arrangement	Description	LLD	UDF	LLF	Arr. Lum. Lumens	Arr. Watts
	7	A	2 @ 90 DEGREES	SLM-LED-18L-SIL-FT-50-70CRI-IL-D90-24'POLE+2'POLE	1.000	1.000	1.000	25136	297
	8	B	SINGLE	SCV-LED-20L-SC-50 MTD @ 18'	1.000	1.000	1.000	20141	130.3
	14	C	2 @ 90 DEGREES	XAM3-FT-LED-119-450-CW-UE-D90-20' MT HGT EXISTING	1.000	1.000	0.770	24686	368
	16	D	SINGLE	CRO2-S-LED-50-CW-UE MTD @ 14.5' EXISTING	1.000	1.000	0.560	4958	60
	8	E	SINGLE	CRO2-FO-LED-30-CW-UE MTD @ 14.5' EXISTING	1.000	1.000	0.560	2674	36.1

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
ALL CALC POINTS	Illuminance	Fc	1.94	44.7	0.0	N.A.	N.A.
DIESEL CANDPY	Illuminance	Fc	45.00	52.2	0.0	N.A.	N.A.
EXISTING GAS CANDPY	Illuminance	Fc	9.90	17.7	1.1	9.00	16.09
PROPERTY LINE @ 5' AG	Illuminance	Fc	1.34	12.7	0.0	N.A.	N.A.
INSIDE NEW CURB AREA	Illuminance	Fc	6.39	44.7	0.0	N.A.	N.A.
INSIDE EXISTING CURB AREA	Illuminance	Fc	2.81	11.6	0.1	28.10	116.00

Based on the information provided, all dimensions and luminaire locations shown represent recommended positions. The engineer and/or architect must determine the applicability of the layout to existing or future field conditions.

This lighting plan represents illumination levels calculated from laboratory data taken under controlled conditions in accordance with The Illuminating Engineering Society (IES) approved methods. Actual performance of any manufacturer's luminaires may vary due to changes in electrical voltage, tolerance in lamps/LED's and other variable field conditions. Calculations do not include obstructions such as buildings, curbs, landscaping, or any other architectural elements unless noted. Fixture nomenclature noted does not include mounting hardware or poles. This drawing is for photometric evaluation purposes only and should not be used as a construction document or as a final document for ordering product.

Rev. No.	Date
3	05-21-2019



DATE: 06-11-2018

SCALE: 1"=30'

DESIGNED BY: NTA

FILE NO. 4515P-2

SHEET 15 OF 15

DWG # 18-10

LIGHTING PROPOSAL LD-143336-5

HANDY MART  
RTE 340- LDRD FAIRFAX HWY

DATE: 6-27-18 REV: 4-09-19 SHEET 1 OF 1

SCALE: 1"=30'



151 Windy Hill Lane  
Winchester, VA 22602

May 24, 2019

Clarke County Planning Department  
101 Chalmers Court  
Berryville, VA 22611

Attn: Mr. Ryan Fincham – Zoning Administrator/Senior Planner

Re: Handy Mart Diesel Pump Expansion - Site Development Plan  
Clarke County Sanitation Authority  
Comment Response Letter

Dear Mr. Fincham:

We are in receipt of Clarke County Sanitary Authority, comments dated November 9, 2018, and offer the following responses:

**Comments from Clarke County Sanitary Authority:**

**Comment 1:** *The Authority requests three prominent notes on the site plan regarding MH #6.*

*-Note One: All materials purchased and installed shall be in accordance with the approved materials lists.*

*-Note Two: The Authority's representative must witness installation and testing.*

*-Note Three: Provide positive drainage away from sanitary manholes throughout construction.*

Response: The notes have been added to sheet 6. See notes 4, 5, & 6.

**Comment 2:** *Adjustment of top of existing sanitary MH D to new grade. Installation of 4-foot diameter riser section with finished chimney not to exceed one vertical foot. Dig up, vacuum testing of adjusted existing MH D, and backfilling shall occur in the presense of a representative of the CCSA. Vertical adjustment must be of watertight construction. Visible infiltration will be cause for ground of rejection.*

Response: See note 2 on sheet 6.

**Comment 3:** *The Authority requests the cut sheets to be furnished for our files with regard to the existing water lateral.*

Response: The existing waterline shown on plan is corrected to match the survey as-built submitted to CCPD on September 2010.

Engineers Surveyors Planners Environmental Scientists Laboratory  
Telephone 540-662-4185 Fax 540-722-9528

[www.greenwayeng.com](http://www.greenwayeng.com)

**Comment 4:** Update the current site plans to depict the correct water lateral, valves, and tie in to water main as based on the as-built submitted to CCPD on September 2010.

Response: The existing waterline shown on plan is corrected to match the survey as-built submitted to CCPD on September 2010.

**Comment 5:** Abandoned line on the current plans shall be removed from site plan depictions. Also, confirm that the water lateral incorrectly depicted on the plans is not active.

Response: The future sanitary lateral connecting to Existing MH D as shown in the Handy Mart Diesel Pump Expansion 2<sup>nd</sup> submission to the county is incorrect. This lateral has been built and shown in the survey as-built submitted to CCPD on September 2010. The lateral has been labeled as existing 8" PVC. This lateral will be removed and plugged as shown on sheet 6. The existing waterline shown on plan is corrected to match the survey as-built submitted to CCPD on September 2010. This existing waterline is active.

**Comment 5:** The easement and vacate shall be updated and filed at the courthouse matching correct.

Response: See note 7 on sheet 6.

Thank you for your assistance with this project. Contact us with any questions or need for additional information.

Sincerely,  
Greenway Engineering



Tung Niki Adhikusuma, P.E  
Project Manager

- cc. Ryan Fincham, Clarke County Planning & Zoning
- Niki Adhikusuma P.E., Greenway Engineering
- Jeremy Tweedie, Greenway Engineering
- Bill Beran, Greenway Engineering
- Ken Rice, HN Funkhouser



151 Windy Hill Lane  
Winchester, VA 22602

May 20, 2019

Mr. Arthur Boyce  
Land Development Engineer  
Clarke, Frederick, Shenandoah & Warren Counties  
14031 Old Valley Pike  
Edinburg, VA 22824

Re: Handy Mart Truck Fueling Station Expansion  
Third review comments response

Dear Mr. Boyce:

Greenway Engineering is in receipt of VDOT second review comments received by email on APRIL 29, 2019 on the Handy Mart Truck Fueling Expansion. We have reviewed the comments and offer the following responses.

***Comment 1:*** *Install a VDOT Standard Entrance on Handy Lane without a truck mountable curb. The radii should be at least 60' in length or longer if needed.*

**Response:** The previously proposed mountable curb entrance at Handy Lane was removed and per our discussion, the proposed entrance at Handy Lane was revised with 60-foot radii on both curbs and widened to 41.7' to provide an adequate path and clearance for truck exiting and vehicle entering in accordance to VDOT standard entrances. See sheet 6

***Comment 2:*** *The HDCG-6 is not approved for use on VDOT right-of-way. The detail on sheet 14 shows the curb 12" in height. Use VDOT Standard CG-6.*

**Response:** The proposed curb within the VDOT right-of-way will be utilizing the VDOT standard CG-6 on Handy Lane and standard CG-7 on US Route 340. Modified heavy duty curb naming is changed to HD-CG8 and HD-HC8 header curb within the truck fueling area and outside the VDOT right-of-way. See site plan on sheet 7 and CG-6 details on sheet 13.

***Comment 3:*** *Show CG-7 on Route 340.*

**Response:** The proposed curb and gutter along Rt 340 with CG-7, see site plan on sheet 6 and details on sheet 6, 12 and 13

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Telephone 540-662-4185 Fax 540-722-9528  
[www.greenwayeng.com](http://www.greenwayeng.com)

**Comment 4:** Provide several cross sections, additional details, spot shots, pavement details, etc... Drainage and passenger vehicle use are concerns in this flat area.

Response: Details of cross section D-D was provided on sheet 13, additional spot elevations per the field survey asbuilt are added including flow arrows. There is a small flat area along the existing decel right-turn lane. We added a curb inlet with a 4' throat opening (DI-3 labeled as structure 17A & 17B) to capture a small drainage runoff and to eliminate the potential for a small ponding area. The additional cross section details, spot elevations, flow arrows and proposed curb inlet will be sufficient for the contractor to install this widening entrance. See site plan sheet 6, grading plan sheet 7, and details sheet 13.

**Comment 5:** Provide typical sections and details for the two different sidewalk offsets.

Response: Typical Cross Section B-B and Cross Section C-C showing a proposed sidewalk along portion of US Route 340 and Handy Lane are provided, see sheet 12.

**Additional Comment:** Add note on the plan for contractor to coordinate with VDOT to modify the existing striping to accommodate the widened entrance on US Route 340.

Response: Note: Contractor to coordinate with VDOT to modify the existing striping to accommodate the widened entrance on US Route 340 see sheet 6.

All VDOT comments should now be addressed. Please review and approve as appropriate. If you have any additional questions or comments, feel free to either call or email me at [nadhikusuma@greenwayeng.com](mailto:nadhikusuma@greenwayeng.com) so we can resolve any remaining concerns.

Sincerely,  
Greenway Engineering



Tung Niki Adhikusuma, P.E  
Project Manager

cc. Ryan Fincham, Clarke County Planning & Zoning  
Niki Adhikusuma P.E., Greenway Engineering  
Jeremy Tweedie, Greenway Engineering  
Ken Rice, HN Funkhouser

## Clarke County - Route 340 - Handy Mart Truck Fueling Expansion

From : Arthur Boyce <bobby.boyce@vdot.virginia.gov> Fri, Apr 26, 2019 01:45 PM  
Subject : Clarke County - Route 340 - Handy Mart Truck Fueling Expansion  
To : Niki Adhikusuma <nadhikusuma@greenwayeng.com>  
Ryan Fincham <rfincham@clarkecounty.gov>, Rhonda Funkhouser  
Cc : <rhonda.funkhouser@vdot.virginia.gov>, Matthew Smith  
<matthew.smith@vdot.virginia.gov>

**DEPARTMENT OF TRANSPORTATION**  
Staunton/Edinburg Land Development  
14031 Old Valley Pike  
Edinburg, VA 22824

Dear Mr. Adhikusuma:

This is to acknowledge receipt of your revised plans dated April 1, 2019 for the subject project. The plans appear satisfactory and are approved with the following changes. Please advise the developer accordingly.

- Install a VDOT Standard Entrance on Handy Lane without a truck mountable curb. The radii should be at least 60' in length or longer if needed.
- The HDCG-6 is not approved for use on VDOT right-of-way. The detail on sheet 14 shows the curb 12" in height. Use VDOT Standard CG-6.
- Show CG-7 on Route 340.
- Provide several cross sections, additional details, spot shots, pavement details, etc... Drainage and passenger vehicle use are concerns in this flat area.
- Provide typical sections and details for the two different sidewalk offsets.

I offer the following general comments on the approval:

- Our review and comments are general in nature. Should details be overlooked during plan review or conditions in the field exist such that additional measures are warranted, such measures shall be completed to the satisfaction of the Department.
- Materials used and methods of construction shall adhere to the current observed VDOT *Road and Bridge Specifications*, *Road and Bridge Standards*, *Manual on Uniform Traffic Control Devices*, and Land Use Permit Special Provisions.
- A preconstruction conference should be held by the engineer and/or developer with the attendance of the contractor, various County agencies, utility companies, and VDOT prior to initiation of work.
- All drainage is to be carried within the right-of-way in ditch lines or gutters along the street to a pipe or drainage easement.
- Any construction related changes to the approved plan must come through the design engineer to VDOT for approval. Please allow a minimum of 5 business days for VDOT review.
- A Land Use Permit shall be obtained before any work is performed on the State's right-of-way. The permit is issued by this office and will require application fees, the salary & expenses of a State assigned inspector, and surety bond coverage. Once satisfactory application has been made, a permit will normally take 20-30 days to process and issue.

If you have any questions or need further information, please do not hesitate to give me a call at (540) 984-5631.

Sincerely,

*Bobby Boyce*

Bobby Boyce

VODT Land Development Engineer  
14031 Old Valley Pike  
Edinburg, VA 22824  
(540)984-5631



151 Windy Hill Lane  
Winchester, VA 22602

May 23, 2019

Mr. Keith Boyd, P.E.  
Director Land Development  
Hurt & Proffitt, Inc.  
1861 Pratt Drive, Suite 1100  
Blacksburg, VA 24060

Re: Handy Mart Truck Fueling Station Expansion  
Second review comments response H&P JN 20181366

Dear Mr. Boyd:

Greenway Engineering is in receipt of H&P second review comments dated October 25, 2018 on the Handy Mart Truck Fueling Expansion. We have reviewed the comments and offer the following responses.

***Comment 1:*** *In a discussion with Ryan Fincham of Clarke County, we learned that the Approving Authority listed in the County Approval block (Sheet 1 of 13) will need to be the Clarke County Planning Commission instead of the Board of Supervisors. Please revise this signature block accordingly.*

Response: **The approving authority block is revised as Clarke County Planning Commission. See sheet 1.**

***Comment 2:*** *(Corresponds with previous review comment #14) - Engineer has provided existing metes and bounds for the separate parcels on Plan Sheet 3 of 12, and has shown the combined lot metes and bounds on subsequent sheets. The actual plat showing the boundary line vacation will need to be submitted by the Engineer and approved by the County as part of the plan submittal package.*

Response: **The boundary is revised and BLA plat has been submitted to Clarke County and approved.**

***Comment 3:*** *(Corresponds with previous review comment #17) - Mary Meredith of CCSA indicates that the discussion concerning the utilities to be covered with concrete paving will be finalized by the Board on October 29, 2018.*

Response: **The comments # 17 has been addressed and coordinated by CCSA.**

Engineers Surveyors Planners Environmental Scientists Laboratory  
Telephone 540-662-4185 Fax 540-722-9528  
www.greenwayeng.com

**Comment 4:** (Corresponds with previous review comment #37) - Minimum pipe angle chart is not provided as noted in Engineer's comments concerning Structure #10. It is assumed that the adjustments made to entry angles of proposed pipes will allow the existing structure to accommodate all pipes. If this is found to be incorrect during construction, the structure will have to be replaced with a larger diameter structure.

Response: The storm configuration has been changed, and the angle of proposed pipes are checked to ensure the manhole can accommodate the pipes. See sheet 6

**Comment 5:** (Corresponds with previous review comment #40) - Plan is not to scale. North Arrow is provided, but is not correctly oriented with the drawing

Response: The plan has been revised and shown with correct scale and correct north arrow configuration. See sheet 14.

**Comment 6:** (Corresponds with previous review comment #41) - The photometric coverage at the property line along Handy Lane appears to be at or below 0.2 foot-candles. The photometric coverage along the eastern lot line (of Lot 6) appears to be quite a bit higher than 0.2 foot-candles. The photometric coverage along the lot line (of lot 6) along Route 340 appears to be mostly in conformance with the 0.2 foot-candle requirement.

Reviewer spoke with County concerning interpretation of the maximum 0.2 foot-candle at common property line requirement. County indicated that since Lot 1 lighting is an existing condition, there will be no requirement to reconcile the Lot 1 to the current standard. In the case where existing lights are being adjusted/relocated (for instance at the entrance off Route 340), the lighting level must be shown to improve toward the current standard from the existing conditions. Where new lighting is being installed (for instance on the eastern portion of Lot 6) the current regulation must be adhered to.

Provide information that shows the adjustment to the existing light near Route 340 reduces the lighting

Level along the property line. Also adjust/remove lighting as necessary on the east side in order to provide the correct foot-candle coverage at the property line.

Response: The proposed lights is reduced and proposed location adjusted, and photometric plan is revised to meet the county code. See sheet 15.

**Comment 7:** (Corresponds with previous review comment #42) – The Engineer indicates that the lighting plan is in compliance with Section 6-H-11-a-5. Per note in previous comments, adjustments must be made to the lighting layout in order for this to be the case.

Response: The proposed light is reduced to meet the county code. See sheet 15.

All comments should now be addressed. Please review and approve as appropriate. If you have any additional questions or comments, feel free to either call or email me at [nadhikusuma@greenwayeng.com](mailto:nadhikusuma@greenwayeng.com) so we can resolve any remaining concerns.

Sincerely,  
Greenway Engineering



Tung Niki Adhikusuma, P.E  
Project Manager

- cc. Ryan Fincham, Clarke County Planning & Zoning
- Niki Adhikusuma P.E., Greenway Engineering
- Jeremy Tweedie, Greenway Engineering
- Bill Beran, Greenway Engineering
- Ken Rice, HN Funkhouser



151 Windy Hill Lane  
Winchester, VA 22602

May 20, 2019

Kyle Settle  
Stormwater Plan Reviewer  
Valley Regional Office  
Virginia Department of Environmental Quality  
4411 Early Road  
Harrisonburg, VA 22801

Re: Handy Mart Diesel Pump Expansion  
Boyce/Clarke County, Virginia  
DEQ SWM #: VRO-18-184  
Stormwater Management (SWM) Plan

Dear Mr. Settle:

Greenway Engineering is in receipt of DEQ's additional review comments received by email on May 10, 2019, on the Handy Mart Diesel Pump Expansion. We have reviewed the comments and offer the following responses.

### **Previous Unresolved Comments**

***Comment 1:*** *A registration statement was not provided with this submission. Please include an updated registration statement for the modification of the existing permit.*

**Response:** Revised registration statement is provided see attached

***Comment 2:*** *Please provide the Geophysical Report mentioned in the plan set and Stormwater Management Report.*

**Response:** Geophysical Report is email to Kyle Settle on May 15, 2019, also please find copy attached with this submission.

### **General Comments**

***Comment 1:*** *Please show all changes in a revision cloud or highlight the changes in the next submission.*

**Response:** Complied, see plan.

Engineers Surveyors Planners Environmental Scientists Laboratory  
Telephone 540-662-4185 Fax 540-722-9528  
www.greenwayeng.com

## **Stormwater Management Plan Comments**

**Comment 1:** *Please reference plan sheets/pages of where information can be found on the plan submitter's checklist.*

**Response:** Complied, see submitter checklist.

**Comment 2:** *The Plan Submitters Checklist shows the disturbed area as 1.45 acres. Sheet 4 of the plans shows the disturbed area as 2.50 acres. Please correct inconsistencies.*

**Response:** the disturbed acreage is coordinated and 2.5 acres and reflected on the submitter checklist

**Comment 3:** *Only one calculation packet was submitted with this submittal.*

**Response:** Two revised calculation packets are provided with this submission

**Comment 4:** *Sheet 5: The 2, 10, and 100 year water surface elevations contained in the SWM Basin 1 Detail do not match the elevations from the Hydrographs in the calculation packet.*

**Response:** The 2, 10, and 100 year water surface elevations in the SWM Basin 1 Detail now match the SWM Report.

**Comment 5:** *Sheet 6: The Elevation is missing from the note regarding the Geo-membrane liner.*

**Response:** Elevation on pond liner is added and coordinated see sheet 6.

**Comment 6:** *Please provide the manufactures specification sheet for the Geo-membrane liner.*

**Response:** Manufacture specification and details are provided see sheet 10 and 13

**Comment 7:** *The Water Quality calculations for this project are based on an applicable area of 3.25 acres. The Hydrographs provided show an area of 3.301 acres. Sheet 8 of the planset shows a Water Quality Area of 2.61 acres. Please clarify the applicable areas for this site.*

**Response:** The 3.301 acres is the total drainage area to the SWM Basin. The 3.25 acres is the applicable area for the water quality computations. Sheet 8 has been corrected and now shows 3.25 acres.

**Comment 8:** *The Water Quality Calculations shown on Sheet 8 of the plan set do not match the Calculations within the Stormwater Management Report. Please Correct.*

**Response:** Sheet 8 has been updated and now matches the SWM Report.

**Comment 9:** *Due to the inconsistency mentioned in Comment 6 please confirm the Nutrient Credit Availability Letter provided still covers the Water Quality Credit requirements of this project.*

**Response:** The nutrient credit availability letter covers water quality requirements for this project.

**Comment 10:** Provide a detail for the Plastic Solution Trash Rack that is proposed. Please include sizing of the trash rack openings.

**Response:** Standard Plastic Solution SWM Riser Trash Rack details and dimension are shown on the plan see sheet 11.

**Comment 11:** Provide a detail for the proposed trash rack over the weir. Please include sizing of the trash rack openings.

**Response:** Standard Plastic Solution Trash Rack over weir details and weir dimension are provided on the plan see sheet 11.

**Comment 12:** Sheet 10: The Emergency Spillway should be shown as Rip Rap in the detail on this sheet and include filter fabric underlayment.

**Response:** Rip Rap with filter fabric underlayment details are added on the emergency spillway see sheet 10 and 13.

**Comment 13:** Sheet 12: Cross Section #1 shown on this sheet does not include filter fabric underlayment for the Rip Rap. What is to be the channel condition below the rip rap? Grading is proposed in this area, but no detail of the downstream channel geometry or stabilization measures are provided as requested in the previous comment letter. Please show the 2- and 10-year Water Surface Elevations within the channel cross section.

**Response:** Filter Fabric underlayment is added on the cross section #1 rip rap detail and as discussed one additional grass channel cross section #2 detail is added and the 2- and 10-year water surface elevation are shown on both of cross sections see sheet 12.

**Comment 14:** Sheet 12: The peak flows for the 2 and 10 year storm events shown on sheet 12 do not correspond to the SP#1 hydrographs provided in the calculation packet. Please review the plans and calculation packet in its entirety to ensure all inconsistencies are remediated.

**Response:** The peak flows now match the SP#1 hydrographs. See sheet 12

**Comment 15:** Sheet 14: Landscaped plantings are shown within the dam embankment of the pond. Please remove.

**Response:** As discussed, the proposed trees located in filled embankment area are removed and replanted elsewhere within the site see sheet 14.

**Comment 16:** Please remove MS4 Coordinator from the exhibit to the BMP Maintenance Agreement and replace with Property Owner. The Owner of the facility is responsible for all maintenance tasks associated with the proper functionality of the BMP.

**Response:** MS4 coordinator from the exhibit to the BMP maintenance Agreement are replaced with Property owner coordinator see attached BMP map location and list of guidance exhibit.

All DEQ comments should now be addressed. Please review and approve as appropriate. If you have any additional questions or comments, feel free to either call or email me at [nadhikusuma@greenwayeng.com](mailto:nadhikusuma@greenwayeng.com) so we can resolve any remaining concerns. We look forward to your final approval.

Sincerely,  
Greenway Engineering



Niki Adhikusuma, P.E.  
Project Manager

Cc: Larry Gavan, DEQ-CO  
Gary Flory, DEQ-VRO  
Jamie Royston, Clarke County E&S  
John McCormack, DEQ-VRO  
Dustin Staton, DEQ-VRO  
File: DEQ Plan Review No. VRO-18-184  
Ken Rice, HN Funkhouser

Enclosures



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

Street address: 1111 East Main Street, Suite 1400, Richmond, VA 23219

Mailing address: P.O. Box 1105, Richmond, Virginia 23218

www.deq.virginia.gov

Matthew J. Strickler  
Secretary of Natural Resources

David K. Paylor  
Director

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

May 10<sup>th</sup>, 2019

Via Electronic Mail  
Mr. Niki Adhikusuma, P.E.  
Green Way Engineering  
151 Windy Hill Lane  
Winchester, VA 22602

Re: Handy Mart Diesel Pump Expansion  
Boyce/Clarke County, Virginia  
DEQ SWM #: VRO-18-184  
Stormwater Management (SWM) Plan

Dear Mr. Adhikusuma:

The Department of Environmental Quality (DEQ) has reviewed the above referenced stormwater management plan dated April 19<sup>th</sup>, 2019 for conformance with the *Virginia Stormwater Management Program (VSMP) Law and Regulations*. We offer the following comments:

### **Previous Unresolved Comments**

1. A registration statement was not provided with this submission. Please include an updated registration statement for the modification of the existing permit.
2. Please provide the Geophysical Report mentioned in the plans and Stormwater Management Report.

### **General Comments**

1. Please show all changes in a revision cloud or highlight the changes in the next submission.

### **Stormwater Management Plan Comments**

1. Please reference plan sheets/pages of where information can be found on the plan submitter's checklist.
2. The Plan Submitters Checklist shows the disturbed area as 1.45 acres. Sheet 4 of the plans shows the disturbed area as 2.50 acres. Please correct inconsistencies.

**May 10<sup>th</sup>, 2019**

Re: DEQ SWM #: VRO-18-184

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3. Only one calculation packet was submitted with this submittal.
4. Sheet 5: The 2, 10, and 100 year water surface elevations contained in the SWM Basin 1 Detail do not match the elevations from the Hydrographs in the calculation packet.
5. Sheet 6: The Elevation is missing from the note regarding the Geo-membrane liner.
6. Please provide the manufactures specification sheet for the Geo-membrane liner.
7. The Water Quality calculations for this project are based on an applicable area of 3.25 acres. The Hydrographs provided show an area of 3.301 acres. Sheet 8 of the planset shows a Water Quality Area of 2.61 acres. Please clarify the applicable areas for this site.
8. The Water Quality Calculations shown on Sheet 8 of the planset do not match the Calculations within the Stormwater Management Report. Please correct.
9. Due to the inconsistency mentioned in Comment 6 please confirm the Nutrient Credit Availability Letter provided still covers the Water Quality Credit requirements of this project.
10. Provide a detail for the Plastic Solution Trash Rack that is proposed. Please include sizing of the trash rack openings.
11. Provide a detail for the proposed trash rack over the weir. Please include sizing of the trash rack openings.
12. Sheet 10: The Emergency Spillway should be shown as Rip Rap in the detail on this sheet and include filter fabric underlayment.
13. Sheet 12: Cross Section #1 shown on this sheet does not include filter fabric underlayment for the Rip Rap. What is to be the channel condition below the rip rap? Grading is proposed in this area but no detail of the downstream channel geometry or stabilization measures are provided as requested in the previous comment letter. Please show the 2 and 10 year Water Surface Elevations within the channel cross section.
14. Sheet 12: The peak flows for the 2 and 10 year storm events shown on sheet 12 do not correspond to the SP#1 hydrographs provided in the calculation packet. Please review the plans and calculation packet in its entirety to ensure all inconsistencies are remediated.
15. Sheet 14: Landscaped plantings are shown within the dam embankment of the pond. Please remove.
16. Please remove MS4 Coordinator from the exhibit to the BMP Maintenance Agreement and replace with Property Owner. The Owner of the facility is responsible for all maintenance tasks associated with the proper functionality of the BMP.

**May 10<sup>th</sup>, 2019**

Re: DEQ SWM #: VRO-18-184

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The preceding comments must be addressed before DEQ can continue the stormwater management plan review and approval process. The re-submittal should include a copy of these comments with responses to each item listed above as well as the referenced page number or sheet number where the requested information can be found. A revision cloud should be used to clearly indicate all stormwater management plan revisions. Two (2) copies of the re-submittal package should be submitted to DEQ for review and approval at the following address:

Postal Mail

Department of Environmental Quality  
Attn: Kyle Settle  
P.O. Box 3000  
Harrisonburg, Virginia 22801

FedEx, UPS, Hand Delivery

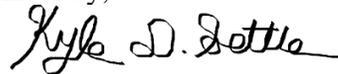
Department of Environmental Quality  
Attn: Kyle Settle  
4411 Early Road  
Harrisonburg, Virginia 22801

**This letter is intended to provide information on what information DEQ believes is needed in order to fully evaluate your stormwater management plan and is not a final determination or case decision under the Administrative Process Act.** In the event that discussions with staff do not lead to a satisfactory resolution of the contents of this letter, you may elect to participate in DEQ's Process for Early Dispute Resolution. For further information on the Process for Early Dispute Resolution, please see Agency Policy Statement No. 8-2005 posted on the Department's website under "Programs", "Water", "Permitting & Compliance" at the following address:

[http://www.deq.virginia.gov/Portals/0/DEQ/Enforcement/Guidance/process%20for%20early%20dispute%20resolution%20no8 2005.pdf](http://www.deq.virginia.gov/Portals/0/DEQ/Enforcement/Guidance/process%20for%20early%20dispute%20resolution%20no8%202005.pdf)

Please contact Kyle Settle at (804) 543-7707 or [Kyle.Settle@deq.virginia.gov](mailto:Kyle.Settle@deq.virginia.gov) if you have any questions about this letter.

Sincerely,



Stormwater Plan Reviewer

cc: Larry Gavan, DEQ-CO  
Gary Flory, DEQ-VRO  
Jamie Royston, Clarke County E&S  
John McCormack, DEQ-VRO  
Dustin Staton, DEQ-VRO  
File: DEQ Plan Review No. VRO-18-184