FOR INDEX OF SHEETS SEE SHEET 1B

FHWA 534 Data 4_023

STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.
VA.	(SEE TABULATIONS BELOW FOR SECTION NUMBERS)		U000-133-338, P-101 (SEE TABULATIONS BELOW FOR SECTION NUMBERS)	1

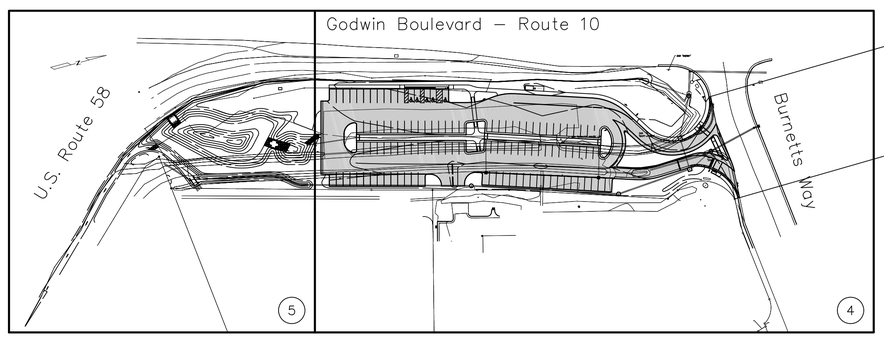
COMMONWEALTH OF VIRGINIA

CITY OF SUFFOLK
DEPARTMENT OF PUBLIC WORKS

PLAN AND PROFILE OF PROPOSED
STATE HIGHWAY
GODWIN BOULEVARD PARK AND RIDE FACILITY

FUNCTIONAL CLASSIFICATION AND TRAFFIC DATA			
NOT APPLICABLE			
BURNETTS WAY	Fr: 0.01 MILES EAST OF THE GODWIN BLVD. INTERSECTION To: 0.04 MILES EAST OF THE GODWIN BLVD. INTERSECTION		
ADT (2011)			
ADT (2034)			
DHV			
D (%) (design hour)			
T (%) (design hour)			
V (MPH)			

Signed and sealed by:
CHRISTOPHER A. TAYLOR P. E.
NAME OF SIGNER
NO. 018688
On the date of:
SIGNATURE DATE
A copy of the original signed and sealed sheet is available.
CONSULTANT LOGO
JOHNSON, MIRMIRAN & THOMPSON
Engineering: A Brighter Future



Begin Project U000-133-338, P-101

VDOT U000-133-338, P-101
COS 310-41100-2168, 53850.140

End Project U000-133-338, P-101

TIER 1 PROJECT

LOCALLY ADMINISTERED PROJECTS	
CITY OF SUFFOLK	
NAME	
DEPARTMENT	
_____	NAME
DATE	TITLE
NAME	
DEPARTMENT	
_____	NAME
DATE	TITLE

RECOMMENDED FOR APPROVAL FOR CONSTRUCTION	
_____	NAME
DATE	PROGRAMMING DIVISION DIRECTOR
_____	NAME
DATE	STATE LOCATION AND DESIGN ENGINEER
_____	NAME
DATE	CHIEF OF PLANNING AND PROGRAMMING

APPROVED FOR CONSTRUCTION	
_____	NAME
DATE	CHIEF ENGINEER

APPROVED	
DATE	DIVISION ADMINISTRATOR FEDERAL HIGHWAY ADMINISTRATION U.S. DEPARTMENT OF TRANSPORTATION

PROJECT MANAGER Sandon Rogers (757) 514-7683 (City of Suffolk)
SURVEYED BY Johnson, Mirmiran & Thompson (757) 499-1895
DESIGN SUPERVISED BY CITY OF SUFFOLK Department of Public Works – Engineering (757) 514-7683
DESIGNED BY Johnson, Mirmiran & Thompson (757) 499-1895

THE COMPLETE ELECTRONIC PDF VERSION OF THE PLAN ASSEMBLY AS AWARDED, HAS BEEN SEALED AND SIGNED USING DIGITAL SIGNATURES AND THE OFFICIAL PLAN ASSEMBLY IN ELECTRONIC FORMAT IS STORED IN THE VDOT CENTRAL OFFICE PLAN LIBRARY, INCLUDING ALL SUBSEQUENT REVISIONS, WILL BE THE OFFICIAL CONSTRUCTION PLANS. FOR INFORMATION RELATIVE TO ELECTRONIC FILES AND LAYERED PLANS, SEE THE GENERAL NOTES.

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT.

THIS PROJECT IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE DEPARTMENT'S 2007 ROAD AND BRIDGE SPECIFICATIONS, 2008 ROAD AND BRIDGE STANDARDS, 2009 MUTCD, 2011 VIRGINIA SUPPLEMENT TO THE MUTCD, 2011 VIRGINIA WORK AREA PROTECTION MANUAL AND AS AMENDED BY CONTRACT PROVISIONS AND THE COMPLETE ELECTRONIC PDF VERSION OF THE PLAN ASSEMBLY.

THE ORIGINAL APPROVED TITLE SHEET(S), INCLUDING ORIGINAL SIGNATURES, ARE FILED IN THE VDOT CENTRAL OFFICE PLAN LIBRARY. ANY MISUSE OF ELECTRONIC FILES, INCLUDING SCANNED SIGNATURES, IS ILLEGAL AND ENFORCED TO THE FULL EXTENT OF THE LAW.

Population 84,585 (2010 Census)

SCALE
0 100' 200'

STATE PROJECT NO.	CITY PROJECT NO.	SECTION	FEDERAL AID PROJECT NO.	TYPE CODE	UPC NO.	EQUALITIES FEET	LENGTH INCLUDING BRIDGE(S) FEET	LENGTH INCLUDING BRIDGE(S) MILES	LENGTH EXCLUDING BRIDGE(S) FEET	LENGTH EXCLUDING BRIDGE(S) MILES	BRIDGE PROJECT NO.	TYPE PROJECT	DESCRIPTION
U000-133-338	310-41100-2168 53850.140	P-101			98815	None	140	0.03	140	0.03		Construction	Park and Ride Facility At Godwin Boulevard and Burnetts Way.

Project Lengths are based on frontage along Burnetts Way.

REVISED

Copyright 2012, Commonwealth of Virginia

PROJECT	SHEET NO.
U000-133-338	1

JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®
272 Bendix Road, Suite 260 Virginia Beach, VA 23452

PROJECT MANAGER Sandon Rodgers (757) 514-7683 (City of Suffolk)
SURVEYED BY Johnson, Mirmiran & Thompson (757) 499-1895
DESIGN SUPERVISED BY CITY OF SUFFOLK Department of Public Works - Engineering (757) 514-7683
DESIGNED BY Johnson, Mirmiran & Thompson (757) 499-1895

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.		U000-133-338, P-101	1A

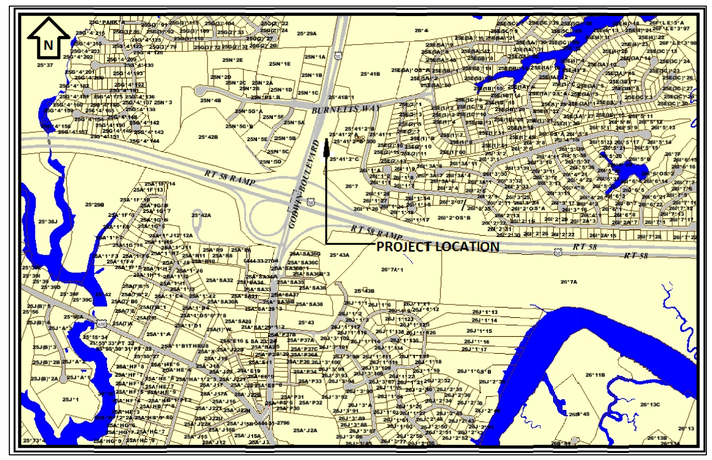
DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Johnson, Mirmiran and Thompson
Richmond, Virginia
ROADWAY ENGINEER

SITE NOTES:

1. THIS PLAN DOES NOT GUARANTEE THE EXISTENCE OR NON-EXISTENCE OF UNDERGROUND UTILITIES. PRIOR TO ANY CONSTRUCTION OR EXCAVATION THE CONTRACTOR SHALL VERIFY THE EXISTENCE AND LOCATION OF, OR THE NON-EXISTENCE OF UNDERGROUND UTILITIES BY CONTACTING "MISS UTILITIES" AT 811.
2. THE CONTRACTOR SHALL VERIFY THE ELEVATIONS OF ALL POINTS OF CONNECTION OF PROPOSED WORK TO EXISTING CURBS, SANITARY LINES, WATER LINES, ETC. PRIOR TO CONSTRUCTION.
3. ELEVATIONS SHOWN HEREON ARE BASED ON STATION #131-NAVD 88 ELEV = 52.8 . HORIZONTAL CONTROL IS REFERENCED TO THE VIRGINIA STATE PLANE COORDINATE SYSTEM (HARN - SOUTH ZONE).
4. PARKING REQUIRED: PROVIDE PARKING = 115 SPACES INCLUDING 5 HC SPACES (2 VAN ACCESSIBLE)
5. LEGAL REFERENCES: N/A
6. ADDRESS: N/A
7. PROPERTY IS ZONED: B-2, SCOD
   ALL ADJOINING PROPERTIES ARE ZONED: B-2.
   MAX. BUILDING HEIGHT: N/A
   FRONT YARD SETBACK = N/A
   SIDE YARD SETBACK = N/A
   REAR YARD SETBACK = N/A
8. STATISTICAL INFORMATION:
   - EXISTING CONDITIONS
     - TOTAL SITE AREA = 1.79 AC
     - AREA OF EXISTING BUILDINGS = 0 SF (0)
     - AREA OF EXISTING IMPERVIOUS SURFACES = 21,344 SF (27%)
   - PROPOSED CONDITIONS
     - TOTAL SITE AREA = 1.79 AC
     - AREA OF PROPOSED BUILDINGS = 0 SF (0)
     - PROPOSED PARKING/LOADING AREA = 51,627 SF (66%)
     - PROPOSED GREEN AREAS = 26,722 SF
     - PROPOSED IMPERVIOUS AREAS = 51,627 SF (66%)
     - USE = PARK AND RIDE LOT
9. THIS PROPERTY APPEARS TO LIE IN FLOOD ZONE 'X' AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN. COMMUNITY PANEL 5101560115D, NOVEMBER 16, 2011.
10. PROPERTY IS LOCATED IN A R.M.A. OF THE CHESAPEAKE BAY PERSERVATION OVERLAY DISTRICT.
11. MINIMUM ON-SITE PAVEMENT DESIGN: (SEE DETAIL SHEET 2A)
    SUBGRADE COMPACTED TO 95% MAX. THEORETICAL DENSITY @ OPTIMUM MOSITURE CONTENT
12. ALL EXCAVATION MATERIAL FROM CONSTRUCTION SHALL BE DISPOSED OF IN A LAWFUL MANNER.
13. ANY AND ALL MATERIAL OR DEBRIS TRACKED ONTO A PUBLIC OR PRIVATE ROAD SURFACE WILL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM ROADS BY SHOVELING OR SWEEPING AND BE TRANSPORTED TO A SEDIMENT CONTROLLED DISPOSAL AREA.
14. ALL PARKING STRIPING INCLUDING H.C. SHALL BE WHITE TRAFFIC PAINT.
15. CONTRACTOR / UTILITY OWNER SHALL BE RESPONSIBLE FOR THE INSTALLATION OF ALL UTILITY LINES, CABLES, (E.G. VERIZON, COX, VA POWER, ETC.). THESE IMPROVEMENTS ARE TO BE UNDERGROUND.
16. ALL UTILITIES LINES SUCH AS ELECTRIC, TELEPHONE, CATV OR OTHER SIMILAR LINES SHALL BE INSTALLED UNDERGROUND AND ALL JUNCTION AND ACCESS BOXES SHALL BE SCREENED WITH APPROPRIATE LANDSCAPING.
    ELECTRICAL METERS AND SERVICE COMPONENTS AND SIMILAR UTILITY DEVICES SHALL BE OUT OF VIEW FROM PUBLIC RIGHT OF WAY.
17. SCS SOIL TYPES: EUNOLA LOAMY FINE SAND
18. THE CONTRACTOR SHALL COMPLY WITH APPLICABLE PROVISIONS OF THE EROSION AND SEDIMENT CONTROL HANDBOOK IN ORDER TO PREVENT SOIL FROM BEING ERODED FROM THE SITE.
19. CONTRACTOR TO CONTACT THE CITY OF SUFFOLK DEPT. OF PUBLIC WORKS AT LEAST 48 HOURS PRIOR TO BEGINNING ANY LAND DISTURBING ACTIVITY.
20. DISTURBED AREA: 2.71 AC
21. ALL DITCHES TO BE FILLED SHALL BE STRIPPED OF ORGANIC MATERIAL, AND BACKFILLED WITH SELECT MATERIAL COMPACTED IN 12" LIFTS. COMPACT TO 90% MAXIMUM THEORETICAL DENSITY AT OPTIMUM MOISTURE CONTENT.
22. TRAFFIC ON EXISTING ROADWAYS MUST BE MAINTAINED DURING CONSTRUCTION WHEN ANY WORK IS BEING PERFORMED WITHIN THE EXISTING RIGHT OF WAY. THE MAINTAINANCE OF TRAFFIC PLAN FOR THIS WORK MUST BE IN CONFORMANCE WITH THE VIRGINIA WORK AREA PROTECTION MANUAL.
23. CONTACT THE CITY TRAFFIC ENGINEER 72 HOURS IN ADVANCE OF ALL ROADWAY PAVEMENT MARKING/SIGN INSTALLATIONS AT (757) 514-7603.
24. CONTACT THE CITY TRAFFIC ENGINEER AT (757) 514-7603 A MINIMUM OF 48 HOURS IN ADVANCE WHENEVER AN OPEN CUT OR BORING OF A UTILITY LINE ACROSS A ROAD IS WITHIN 400 FEET OF A TRAFFIC SIGNAL, SO THE LINES CAN BE MARKED.
25. THIS PROJECT WILL REQUIRE A LAND USE PERMIT TO ALLOW WORKING WITHIN THE CITY RIGHT OF WAY. THIS PERMIT CAN BE OBTAINED FROM THE ROAD MAINTENANCE DIVISION OF PUBLIC WORKS AT (757) 514-7625.
26. LANE CLOSURES ON ANY ARTERIAL OR PRINCIPAL ROADWAY MAY NOT BEGIN PRIOR TO 9:00 AM AND LANES MUST BE REOPENED TO TRAFFIC BY 4:00 P.M. MONDAY THROUGH FRIDAY. WORK IN THE RIGHT OF WAY IS NOT PERMITED ON WEEKENDS AND HOLIDAYS.
27. ALL SIGNAGE ON PUBLIC R/W MUST BE DESIGNED AND INSTALLED IN ACCORDANCE WITH STATE AND FEDERAL MUTCD MANUALS AND STANDARDS.
28. ALL PAVEMENTS MARKING IN PUBLIC R/W MUST BE THERMO-PLASTIC, ALKYD BASE.
29. ALL SIGN POSTS ARE TO BE 2"X 2" QUICK PUNCH POSTS INSTALLED WITH ANCHORS THAT MEASURE 36" IN LENGTH.
30. REGULATORY AND WARNING SIGNS SHALL BE FABRICATED WITH VIP SIGN SHEETING MATERIAL. ALL OTHER REGULATORY, WARNING, AND GUIDANCE SIGNAGE SHALL BE FABRICATED WITH ENCAPSULATED LENS SHEETING MATERIAL, UNLESS OTHERWISE SPECIFICED BY THE CITY.
31. ALL WATER/SEWER CROSSINGS MUST BE VERTICALLY SEPARATED BY 18" IN ACCORDANCE WITH VDH REGULATIONS.
32. CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM TO VDOT ROAD AND BRIDGE SPECIFICATIONS DATED 2007 AND VDOT ROAD BRIDGE STANDARDS DATED 2008.

PROJECT LOCATION



SCALE: 1" = 1000'

BMP RECAPITULATION SHEET

1) FACILITY NAME: GODWIN BOULEVARD PARK AND RIDE
2a) LATITUDE: 36°46'05.6" N
2b) LONGITUDE: 76°35'04.7" W
PLEASE INDICATE THE LATITUDE AND LONGITUDE OF THE BMP USING THE APPROXIMATE CENTER POINT OF THE FACILITY AS THE POINT OF REFERENCE.
3) TAX PARCEL # N/A
PLEASE INDICATE THE TAX MAP/PARCEL # IN WHICH THE BMP IS TO BE CONSTRUCTED.
4) BMP TYPE: WET POND WITH AQUATIC BENCH
PLEASE CHOSE FROM THE FOLLOWING LIST OF BMP TYPES: 4a) BIO-FILTRATION, 4b) BIO-RETENTION, 4c) DRY POND, 4d) FILTER STRIP 4e) GRASS SWALE, 4f) INFILTRATION BASIN 4g) INFILTRATION TRENCH, 4h) OIL GRIT SEPARATOR, 4i) ROOFTOP MANAGEMENT, 4j) SAND FILTER, 4k) STORMWATER WETLAND, 4l) WATER QUALITY INLET), 4m) WET POND 4n) OTHER
5) RMA/RPA TYPE: RMA
PLEASE INDICATE, IS THE BMP LOCATED IN AN RMA OR RPA?
6) RECEIVING STREAM: NANSEMOND R.
PLEASE INDICATE, THE RECEIVING STREAM OF THE BMP INDICATED ABOVE
7) SUB WATERSHED NANSEMOND R.
PLEASE SELECT A SUB-WATERSHED FROM THE FOLLOWING LIST:
7a) JAMES R./PAGAN R./WARWICK CK./CHUCKATUCK CK.
7b) SPEIGHTS RUN/LK CAHOON/LK MEADE/LK KILBY
7c) NANSEMOND R/BENNETTS CK
7d) DISMAL SWAMP/CYPRESS SWAMP
8) DRAINAGE AREA 1.79 AC.
PLEASE INDICATE THE TOTAL DRAINAGE AREA (IN ACRES) FOR THE FACILITY
9) HDR AREA: 0.0 ACRES
PLEASE INDICATE THE AMOUNT (IN ACRES) OF HIGH DENSITY RESIDENTIAL DEVELOPMENT SERVED BY THE BMP
10) LDR AREA: 0.0 ACRES
PLEASE INDICATE THE AMOUNT (IN ACRES) OF LOW DENSITY RESIDENTIAL DEVELOPMENT SERVED BY THE BMP
11) AGR AREA: 0.0 ACRES
PLEASE INDICATE THE AMOUNT (IN ACRES) OF AGRICULTURAL DEVELOPMENT SERVED BY THE BMP
12) IND AREA: 0.0 ACRES
PLEASE INDICATE THE AMOUNT (IN ACRES) OF INDUSTRIAL DEVELOPMENT SERVED BY THE BMP
13) COM AREA: 1.79 AC.
PLEASE INDICATE THE AMOUNT (IN ACRES) OF COMMERCIAL DEVELOPMENT SERVED BY THE BMP
14) MIXED AREA: 0.0 ACRES
PLEASE INDICATE THE AMOUNT (IN ACRES) OF MIXED LAND USE SERVED BY THE BMP
15) TOTAL AREA: 1.79 AC.
PLEASE INDICATE THE TOTAL ACERAGE THE PROJECT CONSISTS OF.
16) DISTURBED AREA: 2.71 AC.
PLEASE INDICATE THE TOTAL DISTURBED AREA (IN ACRES) THE PROJECT CONSISTS OF.

NOTE: THE CONTRACTOR SHALL PROVIDE WRITTEN NOTIFICATION TO ALL OWNERS AND RESIDENTS OF PROPERTY ADJACENT TO A DEVELOPMENT OR OFFSITE IMPROVEMENTS, 30 DAYS PRIOR TO COMMENCEMENT OF WORK UNLESS OTHERWISE DIRECTED BY THE CITY.

LOCATION MAP / CITY NOTES AND DATA

CITY OF SUFFOLK PLAN NO.	PROJECT	SHEET NO.
310-41100-2168 53850.140	U000-133-338	1A

PROJECT MANAGER Sandon Rodgers (757) 514-7683 (City of Suffolk)
SURVEYED BY Johnson, Mirmiran & Thompson (757) 499-1895
DESIGN SUPERVISED BY CITY OF SUFFOLK Department of Public Works - Engineering (757) 514-7683
DESIGNED BY Johnson, Mirmiran & Thompson (757) 499-1895

INDEX OF SHEETS

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.		U000-133-338, P-101	1B

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Johnson, Mirmiran and Thompson
Richmond, Virginia
ROADWAY ENGINEER

PROJECT NO. U000-133-338
CITY OF SUFFOLK

SHEET NO.	DESCRIPTION	STATION TO STATION
1	TITLE SHEET	
1A	LOCATION MAP /CITY NOTES AND DATA	
1B	INDEX OF SHEETS	
1C	REVISION DATA SHEET	
1D	EROSION CONTROL NARRATIVE & NOTES	
1D(1)	EROSION AND SEDIMENT CONTROL NOTES	
1D(2)	EROSION AND SEDIMENT CONTROL DETAILS	
1E	TRAFFIC CONTOL PLAN & NOTES	
2	VDOT GENERAL NOTES	
2A	TYPICAL SECTIONS AND DETAILS	
2B	ROADWAY INCIDENTAL & PAVEMENT SUMMARY	
2C	ROADSIDE DEVELOPMENT SHEET	
2D	GRADING SUMMARY	
2E	DRAINAGE SUMMARY	
2F	EROSION & SEDIMENT CONTROL SUMMARY	
3	TOPOGRAPHIC SURVEY	PARK & RIDE
3(1)	TOPOGRAPHIC SURVEY	PARK & RIDE
4	SITE LAYOUT	PARK & RIDE
4(1)	DEMOLITION AND EROSION & SEDIMENT CONTROL-PHASE I	PARK & RIDE
4(2)	SITE GRADING AND DRAINAGE	PARK & RIDE
4(3)	EROSION & SEDIMENT CONTROL-PHASE-II	PARK & RIDE
5	SITE LAYOUT	PARK & RIDE
5(1)	DEMOLITION AND EROSION & SEDIMENT CONTROL-PHASE I	PARK & RIDE

PROJECT NO. U000-133-338
CITY OF SUFFOLK

SHEET NO.	DESCRIPTION	STATION TO STATION
5(2)	SITE GRADING AND DRAINAGE	PARK & RIDE
5(3)	EROSION & SEDIMENT CONTROL-PHASE II	PARK & RIDE
6 THRU 6(1)	LANDSCAPE PLANS	
7 THRU 7(1)	LIGHTING PLANS	

INDEX OF SHEETS

CITY OF SUFFOLK PLAN NO.	PROJECT	SHEET NO.
310-41100-2168 53850.140	U000-133-338	1B

PROJECT MANAGER Sandon Rodgers (757) 514-7683 (City of Suffolk)
SURVEYED BY Johnson, Mirmiran & Thompson (757) 499-1895
DESIGN SUPERVISED BY CITY OF SUFFOLK Department of Public Works - Engineering (757) 514-7683
DESIGNED BY Johnson, Mirmiran & Thompson (757) 499-1895

REVISION DATA SHEET

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.		U000-133-338, P-101	1C

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Johnson, Mirmiran and Thompson
Richmond, Virginia
ROADWAY ENGINEER

State Project: U000-133-338, P-101
Federal Project:
From: 0.01 MILES EAST OF THE GODWIN BLVD. INTERSECTION
To: 0.04 MILES EAST OF THE GODWIN BLVD. INTERSECTION
UPC Number: 98815

REVISION DATA SHEET

CITY OF SUFFOLK PLAN NO.	PROJECT	SHEET NO.
310-41100-2168 53850.140	U000-133-338	1C

PROJECT MANAGER Sandon Rodgers (757) 514-7683 (City of Suffolk)
SURVEYED BY Johnson, Mirmiran & Thompson (757) 499-1895
DESIGN SUPERVISED BY CITY OF SUFFOLK Department of Public Works - Engineering (757) 514-7683
DESIGNED BY Johnson, Mirmiran & Thompson (757) 499-1895

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.		U000-133-338, P-101	1D

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Johnson, Mirmiran and Thompson
Richmond, Virginia
ROADWAY ENGINEER

EROSION CONTROL NARRATIVE & NOTES

EROSION AND SEDIMENT CONTROL NARRATIVE

Godwin Park and Ride

Project Description
The purpose of this project is construction of a new Park and Ride facility. The site is located at the southeast corner of the Godwin Boulevard and Burnetts Way intersection in Suffolk, Virginia. The site will consist of demolition of the existing Park and Ride site and construction of a new Park and Ride facility with parking, paving, curb and gutter, bike / pedestrian facilities, bus transit circulation, stormwater drainage, SWMF/BMP, landscaping, lawn areas and a memorial to commemorate tornado damage suffered in the area. A total of 2.70± acres will be disturbed during construction.

Existing Site Conditions
The proposed site is relatively flat and is presently cleared with three onsite drainage ditches which convey onsite and offsite stormwater runoff to the southeastern rear property corner. These ditches, outfall into another drainage ditch along the eastern side of the Suffolk Northern Bypass – Route 58. Approximately half of the site is gravel and the rest is lawn and non-tidal wetland (± 15,334 sq.ft.).

Adjacent Areas
Burnetts Way borders the site to the north. Godwin Boulevard borders the site to the west. U.S. Route 58 – Suffolk Northern Bypass borders the site to the south. On the east, there are commercial developments and a stormwater best management practice facility.

Offsite areas
There will be off-site land disturbance due to drainage ditch outfall improvements along the east side of U.S. Route 58 – Suffolk Northern Bypass.

Soils
The existing soil types are of Eunola loamy fine sand with a low shrink – swell potential and slopes ranging from 0 to 2 percent.

Critical Areas
No areas have been identified as critical areas for erosion. The site has a low erosion hazard potential.

Erosion and Sediment Control Measures
Unless otherwise indicated, all vegetative and structural erosion and sediment control practices shall be constructed and maintained according to minimum standards and specifications of the handbook. The minimum standards of the VESCR shall be adhered to unless otherwise waived or approved by a variance.

Structural Practices

Temporary Construction Entrance – 3.02
A temporary construction entrance with a wash rack shall be installed as shown on the erosion control plan. During muddy conditions, drivers of construction vehicles will be required to wash their wheels before entering the highway.

Silt Fence Barrier – 3.05
Silt fence sediment barriers will be installed down slope of disturbed areas with minimal grades to filter sediment-laden runoff from sheet flow as indicated on the plan.

Storm Drain Inlet Protection – 3.07
A storm drain inlet sediment filter will be installed at all storm drain inlets.

Rock Check Dams – 3.20
Several rock check dams will be installed upslope of the outfall ditch to filter sediment – laden runoff and reduce velocity of concentrated flows.

Vegetative Practice

Topsoiling (Stockpile) – 3.30
Topsoil will be stockpiled on the site and utilized as indicated on the plan. Excess material will be removed from the site to a suitable disposal area.

Temporary Seeding – 3.31 / Permanent Seeding– 3.32
All denuded areas that will be left dormant for extended periods of time shall be seeded with fast germinating temporary or permanent vegetation immediately following grading. Selection of the seed mixture will depend on the time of year it is applied.

Erosion Control Blankets – 3.36 or Mulch – 3.35
Erosion control blankets, if needed, will be installed over fill slopes that have been brought to final grade and have been seeded to protect the slopes from rill and gully erosion and to allow seed to germinate properly. Mulch (straw or fiber) will be used on relatively flat areas and will be applied as a second step in the seeding operation.

Management Strategies

1. Construction will be sequenced so that grading operations can begin and end as quickly as possible.
2. Sediment trapping measures will be installed as a first step in grading and checked regularly following installation.
3. Temporary seeding or other stabilization will follow immediately after grading.
4. Areas which are not to be disturbed will be clearly marked by flags, signs, etc.
5. The job superintendent shall be responsible for the installation and maintenance of all erosion and sediment control practices.
6. After achieving adequate stabilization, the temporary E&S controls will be cleaned up and removed.

Permanent Stabilization
All areas disturbed by construction shall be stabilized with permanent seeding immediately following finish grading. Seeding shall be done according to Std. & Spec. 3.32, permanent seeding, of the handbook. Erosion control blankets if needed will be installed over fill slopes which have been brought to final grade and have been seeded to protect the slopes from rill and gully erosion and to allow seed to germinate properly. Mulch (straw or fiber) will be used on relatively flat areas. In all seeding operations, seed, fertilizer and lime will be applied prior to mulching.

Stormwater Runoff Considerations
Calculation of runoff after development indicates that there will be an increase in peak runoff. Consequently, a SWMF/BMP Retention Basin has been designed to detain and release stormwater runoff at the allowable rate.

Calculations
See drainage calculations submitted with this plan.

Maintenance
In general, all erosion and sediment control measures will be checked daily after each significant rainfall. The following items will be checked in particular:

1. The silt fence barrier will be checked regularly for undermining or deterioration of the fabric. Sediment shall be removed when the level of sediment deposition reaches half way to the top of the barrier.
2. The seeded areas will be checked regularly to ensure that a good stand is maintained. Areas should be fertilized and re-seeded as needed.
3. Inlet protection shall be checked for sediment buildup. Buildup, which compromises the function of the inlet, shall be removed and cleaned or replaced.
4. The construction entrance shall be checked for excessive rutting, sediment buildup, and similar deficiencies. All such deficiencies shall be corrected immediately upon discovery.

TWO PHASE EROSION & SEDIMENT CONTROL PLAN

Phase I controls shall be placed as indicated on the Erosion & Sediment plans-Phase I, prior to any land disturbing activities. Mud and debris will be washed from all construction vehicles and equipment before leaving the site. See land disturbing/construction sequence, this sheet.

Phase II work will not commence until Phase I work has been approved by the city inspector. Phase II includes the adjustment of silt fence perimeter controls, providing the cut and fill areas are near final grade and storm sewer is functional. The utilities, curb and gutter, and roads also should be near final grade. Base stone for the roads and parking area should be completed within seven (7) days after reaching final grade for subgrade. Inlet protection shall be provided for all proposed and existing inlet storm structures. Additionally, any stock piles (location of which will be coordinated in the field with the site inspector) will be provided with perimeter silt fence. Topsoil, stockpiles and all areas to be rough graded during initial phase of construction shall be seeded with fast germinating temporary vegetation immediately following grading. Mixture of seed will depend on the time of year. 3:1 slope areas not adequately stabilized by seeding are to be sodded and pegged at the direction of the inspector. After all construction operations have ended and all disturbed areas have been stabilized, mechanical sediment controls shall be removed and the ground permanently stabilized with vegetation upon the approval of the site inspector. See land disturbing/construction sequence, this sheet.

The implementation of Phase II controls cannot begin until the Phase II controls have been approved by the City Inspector.

CHECKLIST
FOR EROSION AND SEDIMENT CONTROL PLANS

X — Minimum Standards – All applicable Minimum Standards must be addressed.

Narrative

1D — Project description – briefly describes the nature and purpose of the land- disturbing activity, and the area (acres) to be disturbed.
1D — Existing site conditions – a description of the existing topography, vegetation and drainage.
1D — Adjacent areas – A description of neighboring areas such as streams, lakes, residential areas, road, etc., which might be affected by the land disturbance.
1D — Off-site areas – Describe any off-site land-disturbing activities that will occur(including borrow sites, waste or surplus areas, etc.). Will any other areas be disturbed?
1D — Soils – a brief description to the soils on the site giving such information as soil name, mapping unit, erodibility, permeability, depth, texture and soil structure.
1D — Critical areas – A description of areas on the site which have potentially serious erosion problems (e.g., steep slopes, channels, wet weather/underground springs, etc.).
1D — Erosion and sediment control measures – A description of the methods which will be used to control erosion and sedimentation on the site. (Controls should meet the specifications in Chapter 3.)
1D — Permanent stabilization – A brief description, including specifications, of how the site will be stabilized after construction is completed.
1D — Stormwater runoff considerations – Will the development site cause an increase in peak runoff rates? Will the increase in run off cause flooding or channel degradation down stream? Describe the strategy to control stormwater runoff.

SITE PLAN

1A — Vicinity map – A small map locating the site in relation to the surrounding area. Include any landmarks which might assist in locating the site.
X — Indicate north – The direction of north in relation to the site.
4(1), 5(1) — Limits of clearing and grading – Areas which are to be cleared and graded.
3, 3(1) — Existing contours – the existing contours of the site.
4(2), 5(2) — Final contours – Changes to the existing contours, including final drainage patterns.
3, 3(1) — Existing vegetation – The existing tree lines, grassed areas, or unique vegetation.
1D — Soils – The boundaries of different soil types.
CALCS. — Existing drainage patterns – The dividing lines and the direction of flow for the different drainage areas. Include the size (acreage) of each drainage area.
N/A — Critical erosion areas – Areas with potentially serous erosion problems. (See Chapter 6 for criteria.)
4, 5 — Site Development – Show all improvements such as buildings, parking lots, access roads, utility construction, etc.
4(1), 4(3) 5(1), 5(3) — Location of practices – The locations of erosions and sediment controls and stormwater management practices used on the site. Use the standard symbols and abbreviations in Chapter 3 of the handbook.
4(3), 5(3) — Off-site areas – Identify any off-site land-disturbing activities (e.g., borrow sites, waste areas, etc.). Show locations of erosion controls. (Is there sufficient information to assure adequate protection and stabilization?)
N/A — Detail drawings – Any structural practices used that are not referenced to the E&S hand book or local handbooks should be explained and illustrated with detail drawings.
1D — Maintenance – A schedule of regular inspections and repair of erosion and sediment control structures should be set forth.

TABLE 3.31B
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 (Loium multi-florum) & Cereal 9 Winter Rye (Secale cereale)	50 – 100
Feb. 16 – Apr. 30	Annual Ryegrass (Lolium multi-florum)	60 – 100
May 1 – Aug. 31	German Millet (Setaria italica)	50

Source: Va. DSWC

EROSION CONTROL AND CONSTRUCTION SEQUENCING

PHASE I

1. OBTAIN NECESSARY PERMITS.
2. SETUP A PRECONSTRUCTION MEETING WITH THE CITY.
3. INSTALL TEMPORARY CONSTRUCTION ENTRANCES AND ESTABLISH SILT FENCE PERIMETER PROTECTION AND MAINTAIN THROUGHOUT CONSTRUCTION.
4. INSTALL ROCK CHECK DAMS AND MAINTAIN THROUGHOUT CONSTRUCTION.
5. DEMOLISH EXISTING PARKING LOT AND CLEAR SITE AS NECESSARY FOR NEW CONSTRCTION.
6. ESTABLISH VEGETATIVE COVER IF DISTURBED AREAS ARE NOT TO BE BROUGHT TO FINAL GRADE FOR MORE THAN 30 DAYS.

PHASE II

7. INSTALL BYPASS STORM SEWER SYSTEM REQUIRED FOR REROUTING OF EXISTING DRAINAGE DITCHES. PROVIDE INLET PROTECTION REQUIRED FOR NEW SYSTEM.
8. REMOVE ROCK CHECK DAMS LOCATED WITHIN EXISTING ONSITE DITCHES. INSTALL NEW SILT FENCE AROUND PROPOSED SIDEWALK AND CURB AS SHOWN ON EROSION CONTROL PLAN. FILL EXISTING DITCHES, ROUGH-GRADE PARKING LOT. EXCAVATE BMP/RETENTION BASIN AND INSTALL SILT FENCE AROUND EDGE OF BASIN.
9. INSTALL UNDERGROUND UTILITIES AND STORM DRAINAGE AND PROVIDE INLET PROTECTION OR OTHER APPROVED PROTECTION AT NEW DRAINAGE STRUCTURES.
10. COMPLETE CONSTRUCTION OF BMP/RETENTION AREA, AND IMMEDIATELY ESTABLISH VEGETATIVE COVER ON BANK SLOPES.
11. INSTALL CURB AND GUTTER.
12. BACKFILL CURB AND GUTTER AND GRADE ALL DISTURBED AREAS.
13. DRESS AND OVERSEED ALL REMAINING DISTURBED AREAS AND IMMEDIATELY ESTABLISH PERMANENT VEGETATIVE COVER. MAINTAIN VEGETATIVE COVER THROUGHOUT DURATION OF PROJECT.
14. PAVE.
15. REPAIR ANY INADVERTENT EROSION AND REMOVE ANY INADVERTENT SEDIMENTATION.
16. INSTALL LANDSCAPING.
17. AFTER VEGETATION IS ESTABLISHED, ENSURE THAT NO SILT OR DEBRIS REACHES THE DRAINAGE SYSTEM.
18. REMOVE REMAINING TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES WITHIN THIRTY DAYS AFTER FINAL SITE IS STABILIZED WITH VEGETATIVE GROWTH.
19. REMOVE ALL TEMPORARY EQUIPMENT, CONSTRUCTION MATERIALS AND DEBRIS FROM THE SITE.

SOILS MAP

EROSION CONTROL NARRATIVE & NOTES

CITY OF SUFFOLK PLAN NO.	PROJECT	SHEET NO.
310-41100-2168 53850.140	U000-133-338	1D

PROJECT MANAGER Sandon Rodgers (757) 514-7683 (City of Suffolk)
SURVEYED BY Johnson, Mirmiran & Thompson (757) 499-1895
DESIGN SUPERVISED BY CITY OF SUFFOLK Department of Public Works - Engineering (757) 514-7683
DESIGNED BY Johnson, Mirmiran & Thompson (757) 499-1895

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.		U000-133-338, P-101	1D(1)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Johnson, Mirmiran and Thompson
Richmond, Virginia
ROADWAY ENGINEER

EROSION AND SEDIMENT CONTROL NOTES

4VAC50-30-40 MINIMUM STANDARDS. (MS-19)

AN EROSION AND SEDIMENT CONTROL PROGRAM ADOPTED BY A DISTRICT OR LOCALITY MUST BE CONSISTENT WITH THE FOLLOWING CRITERIA, TECHNIQUES AND METHODS:

1. 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 30 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.

2. DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES 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 SOILS STOCKPILES ON SITE AS WELL AS BORROW AREAS AND SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.

3. A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT, IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION.

4. SEDIMENT BASINS AND TRAPS, PERIMETER DIKES, SEDIMENT BARRIERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND-DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UP SLOPE LAND DISTURBANCE TAKES PLACE.

5. STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.

6. SEDIMENT TRAPS AND SEDIMENT BASINS SHALL BE DESIGNED AND CONSTRUCTED BASED UPON THE TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP OR BASIN.

   a. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT TRAP SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AND THE TRAP SHALL ONLY CONTROL DRAINAGE AREAS LESS THAN THREE ACRES.
   b. 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 TWENTY-FIVE YEAR STORM OF 24-HOUR DURATION. RUNOFF COEFFICIENTS USED IN RUNOFF CALCULATIONS SHALL CORRESPOND TO A BARE EARTH CONDITION OR THOSE CONDITIONS EXPECTED TO EXIST WHILE THE SEDIMENT BASIN IS UTILIZED.

7. CUT AND FILL SLOPES SHALL BE DESIGNED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES THAT ARE FOUND TO BE ERODING EXCESSIVELY WITHIN ONE YEAR OF PERMANENT STABILIZATION SHALL BE PROVIDED WITH ADDITIONAL SLOPE STABILIZING MEASURES UNTIL THE PROBLEM IS CORRECTED.

8. CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE.

9. WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.

10. ALL STORM SEWER INLETS THAT ARE MADE 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.

11. BEFORE NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS OR PIPES ARE MADE OPERATIONAL, ADEQUATE OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT CHANNEL LINING SHALL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND RECEIVING CHANNEL.

12. WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED, PRECAUTIONS SHALL BE TAKEN TO MINIMIZE ENCROACHMENT, CONTROL SEDIMENT TRANSPORT AND STABILIZE THE WORK AREA TO THE GREATEST EXTENT POSSIBLE DURING CONSTRUCTION. NON ERODIBLE MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF CAUSEWAYS AND COFFERDAMS. EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF ARMORED BY NON ERODIBLE COVER MATERIALS.

13. WHEN A LIVE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES MORE THAN TWICE IN ANY SIX-MONTH PERIOD, A TEMPORARY VEHICULAR STREAM CROSSING CONSTRUCTED OF NON ERODIBLE MATERIAL SHALL BE PROVIDED.

14. ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE MET.

15. THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED.

16. UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:

   a. NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.
   b. EXCAVATED MATERIAL SHALL BE PLACED ON UPHILL SIDE OF TRENCHES.
   c. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.
   d. MATERIAL USED FOR BACK FILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.
   e. RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THESE REGULATIONS.
   f. APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH.

17. WHERE CONSTRUCTION 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.

18. 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 LOCAL PROGRAM AUTHORITY. TRAPPED MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.

19. PROPERTIES AND WATERWAYS DOWNSTREAM FROM DEVELOPMENT SITE SHALL BE PROTECTED FROM SEDIMENT DEPOSITION, EROSION AND DAMAGE DUE TO INCREASE 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:

   a. CONCENTRATED STORMWATER RUNOFF LEAVING A DEVELOPMENT SITE SHALL BE DISCHARGED DIRECTLY INTO AN ADEQUATE NATURAL OR MAN-MADE RECEIVING OUTFALL OF THE PIPE OR PIPE SYSTEM SHALL BE PERFORMED.
   b. ADEQUACY OF ALL CHANNELS AND PIPES SHALL BE VERIFIED IN THE FOLLOWING MANNER:

(1) 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

(2)
   (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 AND BANKS; AND
   (b) ALL PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS SHALL BE ANALYZED BY THE USE OF A TEN-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
   (c) PIPES AND STORM SEWER SYSTEMS SHALL BE ANALYZED BY THE USE OF A TEN-YEAR STORM TO VERIFY THAT STORMWATER WILL BE CONTAINED WITHIN THE PIPE OR SYSTEM.

   (d). IF EXISTING NATURAL RECEIVING CHANNELS OR PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS OR PIPES ARE NOT ADEQUATE, THE APPLICANT SHALL:

(1) IMPROVE THE CHANNEL TO A CONDITION WHERE A TEN-YEAR STORM WILL NOT OVERTOP THE BANKS AND A TWO-YEAR STORM WILL NOT CAUSE EROSION TO THE CHANNEL BED OR BANKS; OR
(2) IMPROVE THE PIPE OR PIPE SYSTEM TO A CONDITION WHERE THE TEN-YEAR STORM IS CONTAINED WITHIN THE APPURTENANCES; OR
(3) DEVELOP A SITE DESIGN THAT WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A TWO-YEAR TO INCREASE WHEN RUNOFF OUTFALLS INTO A NATURAL CHANNEL OR WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A TEN-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A MAN-MADE CHANNEL; OR
(4) PROVIDE A COMBINATION OF CHANNEL IMPROVEMENT, STORMWATER DETENTION OR OTHER MEASURES WHICH IS SATISFACTORY TO THE PLAN-APPROVING AUTHORITY TO PREVENT DOWNSTREAM EROSION.

   d. THE APPLICANT SHALL PROVIDE EVIDENCE OF PERMISSION TO MAKE THE IMPROVEMENTS.
   e. ALL HYDROLOGIC ANALYSES SHALL BE BASED ON EXISTING WATERSHED CHARACTERISTICS AND THE ULTIMATE DEVELOPMENT OF THE SUBJECT PROJECT.
   f. IF THE APPLICANT CHOOSES AN OPTION THAT INCLUDES STORMWATER DETENTION HE SHALL OBTAIN APPROVAL FROM THE LOCALITY OF 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.
   g. OUTFALL FROM A DETENTION FACILITY SHALL BE DISCHARGED TO A RECEIVING CHANNEL, AND ENERGY DISSIPATERS SHALL BE PLACED AT THE OUTFALL OF ALL DETENTION FACILITIES AS NECESSARY TO PROVIDE A STABILIZED TRANSITION FROM THE FACILITY TO THE RECEIVING CHANNEL.
   h. ALL ON-SITE CHANNELS MUST BE VERIFIED TO BE ADEQUATE.
   i. INCREASED VOLUMES OF SHEET FLOWS THAT MAY CAUSE EROSION OR SEDIMENTATION OR ADJACENT PROPERTY SHALL BE DIVERTED TO A STABLE OUTLET, ADEQUATE CHANNEL, PIPE OR PIPE SYSTEM, OR TO A DETENTION FACILITY.
   j. IN APPLYING THESE STORMWATER RUNOFF 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.
   k. ALL MEASURES USED TO PROTECT PROPERTIES AND WATERWAYS SHALL BE EMPLOYED IN A MANNER WHICH MINIMIZES IMPACTS ON PHYSICAL,CHEMICAL AND BIOLOGICAL INTEGRITY OF RIVERS, STREAMS AND OTHER WATERS OF THE STATE.

CITY OF SUFFOLK STANDARD EROSION & SEDIMENT CONTROL NOTES:

1. UNLESS OTHERWISE INDICATD, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSIONS AND SEDIMENT CONTROL HANDBOOK (3RD EDITION, 1992) AND THE CITY OF SUFFOLK EROSION AND SEDIMENT CONTROL ORDINANCE.

2. THE CONTRACTOR SHALL APPLY PERMANENT OR TEMPORARY SOIL STABILIZATION TO ALL DENUDED OR DISTURBED AREA WITHIN 7 DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. SOIL STABILIZATION MUST ALSO BE APPLIED TO DENUDED OR DISTURBED AREAS WHICH MAY NOT BE A FINAL GRADE BUT WHICH WILL REMAIN UNDISTURBED FOR LONGER THAN 30 DAYS. SOIL STABILIZATION MEASURES INCLUDE VEGETATIVE ESTABLISHMENT, MULCHING AND THE EARLY APPLICATION OF GRAVEL BASE MATERIAL ON AREAS TO BE PAVED.

3. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACE PRIOR TO OR AS THE FIRST STEP IN LAND DISTURBANCE.

4. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES AND CLEANUP OF SEDIMENTATION ARE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE MADE IMMEDIATELY.

5. THE CONTRACTOR SHALL LIMIT SITE ACCESS BY CONSTRUCTION VEHICLES TO ENTRANCES PROTECTED BY A STONE CONSTRUCTION ENTRANCE (VESCH STD. & SPEC. 3.02) OR AN APPROVED COMPARABLE CONTROL MEASURE. SEDIMENT SHALL BE REMOVED FROM PAVED AREAS ON A DAILY BASIS.

6. STOCK PILES OF SOIL AND OTHER ERODIBLE MATERIALS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE CONTRACTOR IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION FOR STOCKPILES ON SITE AS WELL AS MATERIALS TRANSPORTED FROM THE PROJECT SITE.

7. THE CONTRACTOR SHALL MONITOR AND TAKE PRECAUTIONS TO CONTROL DUST INCLUDING (BUT NOT LIMITED TO) USE OF WATER, MULCH OR CHEMICAL DUST ADHESIVES AND CONTROL THE CONSTRUCTION OF SITE TRAFFIC.

8. EFFLUENT FROM DE-WATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT ADJACENT PROPERTIES, WETLANDS, WATERWAYS OR THE STORM DRAINAGE SYSTEM.

9. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION AND MAINTENANCE OF ANY ADDITIONAL CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED NECESSARY BY THE PLAN APPROVING AUTHORITY.

10. TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES ARE NOT TO BE REMOVED UNTIL ALL DISTURBED AREAS ARE STABILIZED. AFTER STABILIZATION IS COMPLETE, ALL MEASURES SHALL BE REMOVED WITHIN 30 DAYS. TRAPPED SEDIMENT SHALL BE SPREAD AND SEEDED.

TABLE 3.32-E
(REVISED JUNE 2003)
PERMANENT SEEDING SPECIFICATIONS FOR COASTAL PLAIN AREA

PS

SEED[1]		
LAND USE	SPECIES	APPLICATION RATES
MINIMUM CARE LAWN (COMMERICAL OR RESIDENTIAL)	TALL FESCUE[1] OR BERMUDAGRASS[1]	175-200 LBS 75 LBS.
HIGH MAINTENANCE LAWN	TALL FESCUE[1] OR BERMUDAGRASS[1] (SEED) OR BERMUDAGRASS[1] (BY OTHER VEGETATIVE ESTABLISHMENT METHOD, SEE STD. & SPEC. 3.34)	200-250 LBS. 40 LBS. (UNHULLED) 30 LBS. (HULLED)
GENERAL SLOPE (3:1 OR LESS)	TALL FESCUE[1] RED TOP GRASS OR CREEPING RED FESCUE SEASONAL NURSE CROP[2]	128 LBS. 2 LBS. 20 LBS. 150 LBS.
LOW-MAINTENANCE SLOPE (STEEPER THAN 3:1)	TALL FESCUE[1] BERMUDAGRASS[1] RED TOP GRASS OR CREEPING RED FESCUE SEASONAL NURSE CROP[2] SERICEA LESPEDEZA [3]	93-108 LBS. 0-15 LBS. 2 LBS. 20 LBS. 20 LBS. 150 LBS.

1- WHEN SELECTING VARIETIES OF TURFGRASS, USE THE VIRGINIA CROP IMPROVEMENT ASSOCIATION (VCIA) RECOMMENDED TURFGRASS VARIETY LIST. QUALITY SEED WILL BEAR A LABEL INDICIATING THAT THEY ARE APPROVED BY VCIA. A CURRENT TURFGRASS VARIETY LIST IS AVAILABLE AT THE LOCAL COUNTY EXTENSION OFFICE OR THROUGH VCIA AT 804-746-4884 OR AT HTTP://SUDAN.CSES.VT.EDU/HTML/TURF/TURF/PUBLICATIONS/PUBLICATIONS2.HTML

2- USE SEASONAL NURSE CROP IN ACCORDANCE WITH SEEDING DATES AS STATED BELOW:
FEBRUARY, MARCH- APRIL.....ANNUAL RYE
MAY 1st AUGUST .....FOXTAIL MILLET
SEPTEMBER, OCTOBER-NOVEMBER 15th.....ANNUAL RYE
NOVEMBER 16th- JANUARY.....WINTER RYE

3- MAY THROUGH OCTOBER USE HULLED SEED. ALL OTHER SEEDING PERIODS, USE UNHULLED SEED. IF WEEPING LOVEGRASS IS USED, INCLUDE IN ANY SLOPE OR LOW MAINTENANCE MIXTURE DURING WARMER SEEDING PERIODS, INCREASE TO 30-40 LBS/ACRE.

FERTILIZER & LIME

- APPLY 10-20-10 FERTILIZER AT A RATE OF 500 LBS./ACRE (OR 12 LBS./1,000 S.F.)
- APPLY PULVERIZED AGRICULTURAL LIMESTONE AT A RATE OF 2 TONS/ACRE (OR 90 LBS./1,000 S.F.)

NOTE:
-A SOIL TEST IS NECESSARY TO DETERMINE THE ACTUAL AMOUNT OF LIME REQUIRED TO ADJUST THE SOIL pH OF SITE.
-INCORPORATE THE LIME AND FERTILIZE INTO THE TOP 4-6 INCHES OF THE SOIL BY DISKING OR OTHER MEANS.

-WHEN APPLYING SLOWLY AVAILABLE NITROGEN, USE RATES AVAILABLE IN EROSION & SEDIMENT CONTROL TECHNICAL BULLETIN #4, 2003 NUTRIENT MANAGEMENT FOR DEVELOPMENT SITES AT HTTP://WWW.DCR.STATE.VA.US/SW/E&SHTM#PUBS.

EROSION AND SEDIMENT CONTROL NOTES

CITY OF SUFFOLK PLAN NO.	PROJECT	SHEET NO.
310-41100-2168 53850.140	U000-133-338	1D(1)

PROJECT MANAGER Sandon Rodgers (757) 514-7683 (City of Suffolk)
SURVEYED BY Johnson, Mirmiran & Thompson (757) 499-1895
DESIGN SUPERVISED BY CITY OF SUFFOLK Department of Public Works - Engineering (757) 514-7683
DESIGNED BY Johnson, Mirmiran & Thompson (757) 499-1895

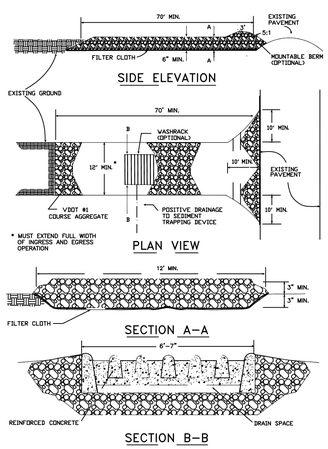
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.		U000-133-338, P-101	1D(2)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Johnson, Mirmiran and Thompson
Richmond, Virginia
ROADWAY ENGINEER

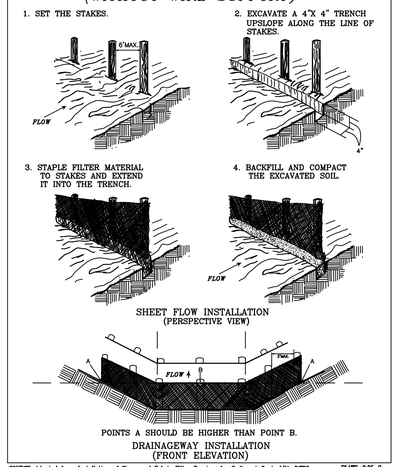
EROSION AND SEDIMENT CONTROL DETAILS

STONE CONSTRUCTION ENTRANCE



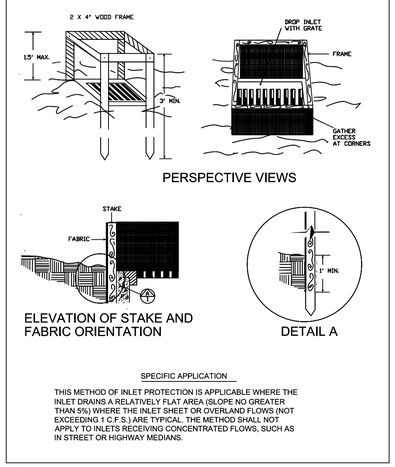
SOURCE: ADAPTED from 1983 Maryland Standards for Soil erosion and Sediment Control, and Va. DSWC. Plate 3.02-1

CONSTRUCTION OF A SILT FENCE (WITHOUT WIRE SUPPORT)



SOURCE: Adapted from Installation of Straw and Fabric Filter Barriers for Sediment Control, VA. DSWC Sherwood and Wyant. PLATE 3.05-2

SILT FENCE DROP INLET PROTECTION

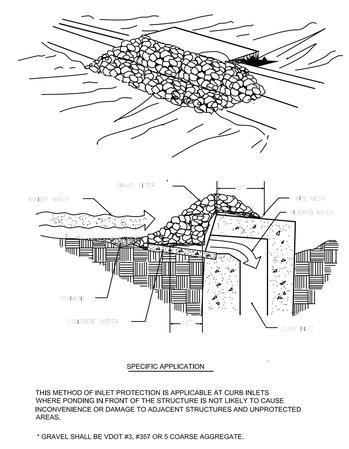


SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS A RELATIVELY FLAT AREA (SLOPE NO GREATER THAN 5%) WHERE THE INLET SHEET OR OVERLAND FLOWS (NOT EXCEEDING 1 C.F.S.) ARE TYPICAL. THE METHOD SHALL NOT APPLY TO INLETS RECEIVING CONCENTRATED FLOWS, SUCH AS IN STREET OR HIGHWAY MEDIANS.

SOURCE: N.C. Erosion and Sediment Control Planning and Design Manual, 1988 PLATE 3.07-1

GRAVEL CURB INLET SEDIMENT FILTER



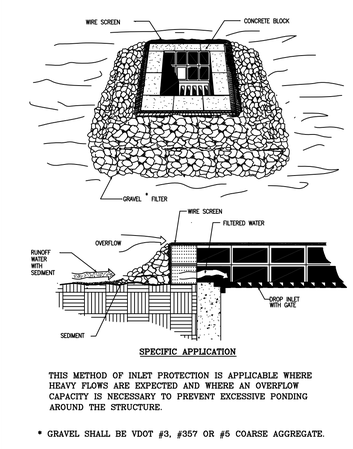
SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE AT CURB INLETS WHERE PONDING IN FRONT OF THE STRUCTURE IS NOT LIKELY TO CAUSE INCONVENIENCE OR DAMAGE TO ADJACENT STRUCTURES AND UNPROTECTED AREAS.

* GRAVEL SHALL BE VDOT #3, #357 OR 5 COARSE AGGREGATE.

SOURCE: VA. DSWC PLATE 3.07-6

BLOCK AND GRAVEL DROP INLET SEDIMENT FILTER



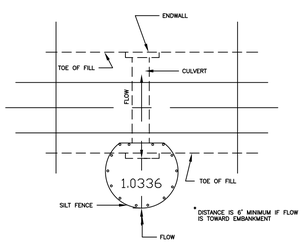
SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE HEAVY FLOWS ARE EXPECTED AND WHERE AN OVERFLOW CAPACITY IS NECESSARY TO PREVENT EXCESSIVE PONDING AROUND THE STRUCTURE.

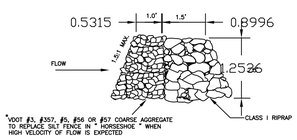
* GRAVEL SHALL BE VDOT #3, #357 OR #5 COARSE AGGREGATE.

SOURCE: VA. DSWC PLATE. 3.07-3

SILT FENCE CULVERT INLET PROTECTION

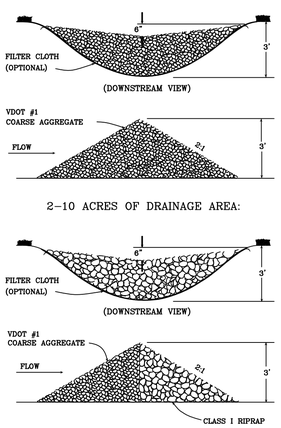


* OPTIONAL STONE COMBINATION



SOURCE: ADAPTED from VDOT Standard Sheets and Va. DSWC PLATE. 3.08-1

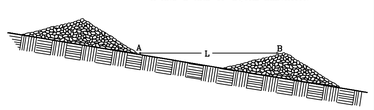
ROCK CHECK DAM



SOURCE: VA. DSWC PLATE. 3.20-1

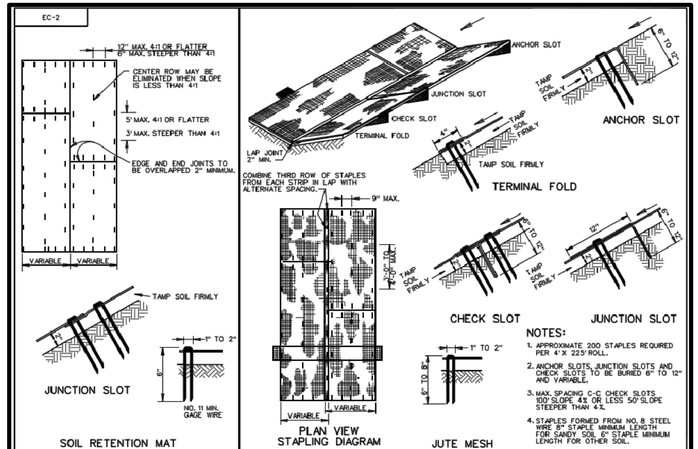
SPACING BETWEEN CHECK DAMS

L = THE DISTANCE SUCH THAT POINTS A AND B ARE OF EQUAL ELEVATION



SOURCE: VA. DSWC PLATE. 3.20-2

EC-2



NOTES:

1. APPROXIMATE 200 STAPLES REQUIRED PER 4'X 225' ROLL.
2. ANCHOR SLOTS, JUNCTION SLOTS AND CHECK SLOTS TO BE BURIED 6" TO 12" AND VARIABLE.
3. MAX. SPACING C-C CHECK SLOTS 100' SLOPE 4% OR LESS 50' SLOPE STEEPER THAN 4%.
4. STAPLES FORMED FROM NO. 8 STEEL WIRE 8" STAPLE MINIMUM LENGTH FOR SANDY SOIL 6" STAPLE MINIMUM LENGTH FOR OTHER SOIL.

GENERAL NOTES:

1. BASIS OF PAYMENT TO BE SQUARE YARDS OF PROTECTIVE COVERING COMPLETE IN PLACE. PROTECTIVE COVERING IS TO BE LOCATED AS INDICATED ON THE PLANS IN ACCORDANCE WITH THE DIMENSIONS SPECIFIED ON TYPICAL SECTION.
2. "T-TOP" STAPLES OR OTHER MANUFACTURER'S DESIGN APPROVED BY THE ENGINEER MAY BE SUBSTITUTED FOR THE STAPLES SHOWN.
3. JUTE MESH OR SOIL RETENTION MAT IN ACCORDANCE WITH THE SPECIFICATIONS MAY BE USED AT THE OPTION OF THE CONTRACTOR.
4. WIDTH OF MATERIAL MAY VARY FROM MINIMUM DIMENSION BY INCREMENTS OF 4 OR 5 FEET.
5. FOR SOURCES OF APPROVED MATERIAL SEE VDOT'S APPROVED PRODUCTS LIST FOR STD. EC-2 MATERIAL.

VDOT ROAD AND BRIDGE STANDARDS	PROTECTIVE COVERING INSTALLATION CRITERIA	SPECIFICATION REFERENCE
SHEET 1 OF 1 / REVISION DATE	VIRGINIA DEPARTMENT OF TRANSPORTATION	244 606
113.02		

EROSION AND SEDIMENT CONTROL DETAILS

CITY OF SUFFOLK PLAN NO.	PROJECT	SHEET NO.
310-41100-2168 53850.140	U000-133-338	1D(2)

PROJECT MANAGER Sandon Rodgers (757) 514-7683 (City of Suffolk)
SURVEYED BY Johnson, Mirmiran & Thompson (757) 499-1895
DESIGN SUPERVISED BY CITY OF SUFFOLK Department of Public Works - Engineering (757) 514-7683
DESIGNED BY Johnson, Mirmiran & Thompson (757) 499-1895

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.		U000-133-338, P-101	1E

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Johnson, Mirmiran and Thompson
Richmond, Virginia
ROADWAY ENGINEER

TRAFFIC CONTROL PLAN & NOTES

1. THE TRAFFIC CONTROL PLAN IS INTENDED AS A GUIDE AND IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PRESENT A FORMAL PLAN TO THE ENGINEER FOR APPROVAL PRIOR TO ANY CONSTRUCTION THAT MAY AFFECT EXISTING TRAFFIC.

2. THE MAINTENANCE OF TRAFFIC DURING CONTRUCTION SHALL BE IN ACCORDANCE WITH THE VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE SPECIFICATIONS DATED JANUARY 2007, AND THE VIRGINIA WORK AREA PROTECTION MANUAL DATED MAY 2005 AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) DATED 2009.

3. THE CONTRACTOR SHALL SUBMIT A DETAILED MAINTENANCE OF TRAFFIC / SEQUENCE OF CONSTRUCTION PLAN FOR REVIEW AND APPROVED BY VDOT. THE CONTTRACTOR SHALL ALLOW A MINIMUM OF A TWO-WEEK REVIEW PERIOD, AND MAJOR CHANGES IN PHASE WILL REQUIRE APPROVAL OF THE ENGINEER. MINOR ADJUSTMENTS TO THE MAINTENANCE OF TRAFFIC PLAN SHALL BE REVIEWED BY THE ENGINEER.

4. EMERGENCY VEHICLE ACCESS IS TO BE MAINTAINED AT ALL TIMES.

5. IT IS NOT THE INTENT OF THE MAINTENANCE OF TRAFFIC / SEQUENCE OF CONSTRUCTION PLANS TO ENUMERATE EVERY DETAIL WHICH MUST BE CONSIDERED IN THE CONSTRUCTION OF EACH STAGE, BUT TO SHOW THE GENERAL HANDLING OF TRAFFIC.

6. ALL AREAS EXCAVATED BELOW EXISTING PAVEMENT SURFACE AND WITHIN THE CLEAR ZONE, OF THE CONCLUSION OF EACH WORKDAY, SHALL BE BACKFILLED TO FORM AN APPROXIMATE 6:1 WEDGE AGAINST THE EXISTING PAVEMENT SURFACE FOR THE SAFETY AND PROTECTION OF VEHICULAR TRAFFIC. ALL COSTS FOR PRICING, MAINTAINING AND REMOVING THE 6:1 WEDGE SHALL BE INCLUDED IN THE PRICE BID FOR OTHER ITEMS IN THE CONTRACT AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

7. ALL MAINTENANCE OF TRAFFIC CONTROL DEVICES ARE TO BE NCHRP COMPLIANT.

8. CONTRACTOR SHALL MAINTAIN ACCESS AT ALL TIMES TO THE PRIVATE / COMMERCIAL ENTRANCES IN ACTIVE USE AT THE TIME OF CONSTRUCTION.

9. THE COST OF EARTHWORK / EXCAVATION REQUIRED FOR PLACEMENT OF TEMPORARY PAVEMENT DURING MAINTENANCE OF TRAFFIC SHALL BE INCLUDED IN THE PRICE OF OTHER PAY ITEMS.

LANE CLOSURE COMMENT:

ALL WORK AREAS AND LANE CLOSURES SHALL BE IN ACCORDANCE WITH THE VIRGINIA WORK AREA PROTECTION MANUAL DATED MAY 2005 AND SHALL BE DIRECTED OR APPROVED BY CITY OF SUFFOLK PUBLIC WORKS DEPARTMENT - ENGINEERING DIVISION. NO LANE CLOSURE OPERATION SHALL BE CONDUCTED WITHOUT A RECEIVED WRITTEN REQUEST 48 TO 72 HOURS PRIOR TO THE OPERATION. ONCE THE REQUEST HAS BEEN APPROVED, WORK MAY COMMENCE. HOURS OF CLOSURE SHALL BE CONDUCTED BETWEEN 9:00 AM AND 4:00 PM MONDAY THROUGH FRIDAY. LANE CLOSURES WILL NOT BE PERMITTED ON SATURDAYS, SUNDAYS, STATE RECOGNIZED HOLIDAYS AND OTHER DAYS DEEMED BY THE CITY OF SUFFOLK TO BE THE SAME AS HOLIDAYS. LANE CLOSURES WILL BE PROHIBITED FROM NOON PRIOR TO A THREE DAY WEEKEND TO NOON THE FOLLOWING WORK DAY. THE CONTRACTOR SHALL NOT CONDUCT OPERATIONS WHEN THE WEATHER CAUSES UNSAFE CONDITIONS FOR THE TRAVELING PUBLIC AS DETERMINED BY THE PUBLIC WORKS DEPARTMENT. - ENGINEERING DIVISION. THE PUBLIC WORKS ENGINEERING DEPARTMENT RESERVES THE RIGHT TO CHANGE ANY OR ALL THE WORKING HOURS WHEN SUCH CHANGES ARE IN THE BEST INTEREST OF THE TRAVELING PUBLIC. THE CONTRACTOR MAY REQUEST A CHANGE IN THE HOURS OF OPERATION IF THE REQUESTED TIME WILL BE SAFE FOR THE TRAVELING PUBLIC. THIS REQUEST MUST BE APPROVED BY THE PUBLIC WORKS ENGINEERING DEPARTMENT TO CONDUCTING SUCH OPERATION. ALL SIGNS, EQUIPMENT,AND MATERIAL WILL BE MOVED FROM THE CITY OF SUFFOLK'S RIGHT-OF-WAY PRIOR TO THE END OF THE LANE CLOSURE TIME INDICATED. WORK ON ROUTES 10/32, 13. 17, 58, 337, AND 460, THERE SHALL BE AT LEAST ONE LANE OPEN AT ALL TIMES.

Typical Traffic Control
Shoulder Operation with Minor Encroachment
(Figure TTC-5.0)
NOTES

Standard

1. **On divided highways having a median wider than 8', right and left sign assemblies shall be required. See Note 1, TTC-4 for addition sign information.**

Guidance

2. *Sign spacing should be 1300'-1500' for Limited Access highways. For all other roadways, the sign spacing should be 500'-800' where the posted speed limit is greater than 45 mph, and 350'-500' where the posted speed limit is 45 mph or less.*
3. *When work takes up part of a lane on a high volume roadway; vehicular traffic volumes, vehicle mix, speed and capacity should be analyzed to determine whether the affected lane should be closed. Unless the lane encroachment analysis permits a remaining lane width of 10 feet, the lane should be closed. If the closure operation is on a Limited Access highway, the minimum lane width is 11 feet.*

Option:

4. The ROAD WORK AHEAD (W20-1) sign on an intersecting roadway may be omitted where drivers emerging from that roadway will encounter another advance warning sign prior to this activity area.

Standard:

5. **A shadow vehicle with either an arrow board operating in the caution mode, or at least one high-intensity amber rotating, flashing, oscillating, or strobe light shall be parked 80' - 120' in advance of the first work crew.**
6. **Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity amber rotating, flashing, oscillating, or strobe lights. Vehicle hazard warning signals can be used to supplement high-intensity amber rotating, flashing, oscillating, or strobe lights.**
7. **Taper length (L) and channelizing device spacing shall be at the following:**

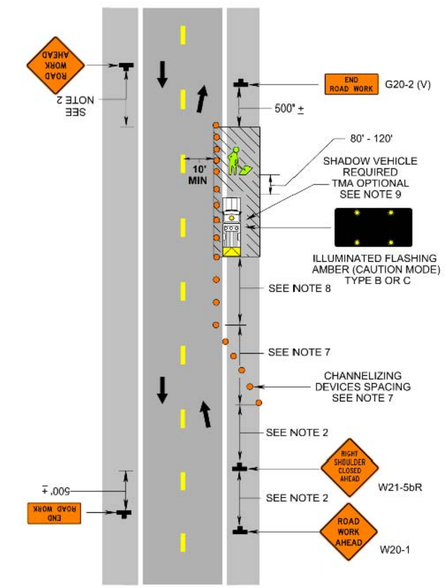
Taper Length (L)				
Speed Limit (mph)	Lane Width (Feet)			
	9	10	11	12
25	95	105	115	125
30	135	150	165	180
35	185	205	225	245
40	240	270	295	320
45	405	450	495	540
50	450	500	550	600
55	495	550	605	660
60	540	600	660	720
65	585	650	715	780
70	630	700	770	840
Minimum taper lengths for Limited Access highways shall be 1000 feet.				
Shoulder Taper = ⅓ L Minimum				

Channelizing Device Spacing		
Location	Speed Limit (mph)	
	0 - 35	36 +
Transition Spacing	20'	40'
Travelway Spacing	40'	80'
Construction Access*	80'	120'
* Spacing may be increased to this distance, but shall not exceed one access per ¼ mile.		

On roadways with paved shoulders having a width of 8 feet or more, channelizing devices shall be used to close the shoulder in advance of the merging taper to direct vehicular traffic to remain within the traveled way.

8. **The buffer space length shall be as shown in Table 6H-3 on Page 6H-5 for the posted speed limit.**
9. **A truck-mounted attenuator (TMA) shall be used on Limited Access highways and multi-lane roadways with posted speed limit equal to or greater than 45 mph.**
10. **When a side road intersects the highway within the temporary traffic control zone, additional traffic control devices shall be placed as needed.**

Shoulder Operation with Minor Encroachment
(Figure TTC-5.0)



TRAFFIC CONTROL PLAN & NOTES

CITY OF SUFFOLK PLAN NO.	PROJECT	SHEET NO.
310-41100-2168 53850.140	U000-133-338	1E

PROJECT MANAGER Sandon Rodgers (757) 514-7683 (City of Suffolk)
SURVEYED BY Johnson, Mirmiran & Thompson (757) 499-1895
DESIGN SUPERVISED BY CITY OF SUFFOLK Department of Public Works - Engineering (757) 514-7683
DESIGNED BY Johnson, Mirmiran & Thompson (757) 499-1895

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.		U000-133-338, P-101	2

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Johnson, Mirmiran and Thompson
Richmond, Virginia
ROADWAY ENGINEER

VDOT GENERAL NOTES

GRADING

G-1 The grade line denotes top of finished pavement unless shown otherwise on typical sections or plans.

G-2 Earthwork quantities on this project are based on anticipated settlement and may require adjusting during construction.

G-4 The cost of removal of all existing concrete items located in the area to be graded, including, but not limited to the following, shall be included in the price bid for regular excavation: Curb and gutter, curb, drop inlets, storm pipe, endwalls, paved ditches, underdrain, sidewalk, median strip, small footings and small block or brick items.

G-5 The excavation of unsuitable material as specified on these plans is based on previously conducted subsurface soil investigation. If, during construction, it is deemed necessary to change the depth more than one foot, or the limits of such excavation, such change is to be made at the direction of the Engineer and measurement and payment shall be made in accordance with Section 303 of the applicable VDOT Road and Bridge Specifications.

G-6 The borrow material for this project shall be a minimum CBR 4.4 or as approved by the Materials Engineer.

DRAINAGE

D-1 The horizontal location of all drainage structures shown on these plans is approximate only, with the exception of structures showing specific stations, special design bridges and storm sewer systems.

D-2 The horizontal location and invert elevations shown for proposed culverts and storm sewer outfall pipes are based on existing survey data and required design criteria. If during construction, it is found that the horizontal location or invert elevations shown on the plans differ significantly from the horizontal location or elevations of the stream or swale in which the culvert or storm sewer outfall pipe is to be placed, the Engineer shall confer with, and get approval from, the applicable District Drainage Engineer before installing the culvert or storm sewer outfall pipe.

D-3 The "H" dimensions shown on plans for drop inlets and junction boxes and the "L.F. " dimensions shown for manholes are for estimating purposes and are based on the proposed invert elevations shown for the structure and the anticipated top (rim) elevation based on existing or proposed finished grade. The actual "H" or "L.F. " dimensions are to be determined by the contractor from field conditions.

D-7 All pipe on this project shall be RCP. For strengh, sheet thickness, or class designation, available sizes, height of cover limitations and other restrictions for a particular pipe type or height of cover, see the applicable sections of the VDOT Road and Bridge Standards PC-1

D-13 Existing drainage facilities being utilized as a part of the drainage system, and designated on the plans "To Be Cleaned Out" shall be cleaned as directed by the Engineer. The cost incidental to this shall be included in the contract price for other items.

D-14 Proposed drop inlets with a height (H) less than the standard minimum shown in the VDOT Road and Bridge Standards shall be considered and paid for as Standard Drop Inlets for the type specified.

D-16 When CG-6 or CG-7 is specified on a radius (such as at a street intersection), the Engineer may approve a decrease in the cross slope of the gutter to facilitate proper drainage.

PAVEMENT

P-2 The pavement materials on this project will be paid for on a tonnage basis. The weight will vary in accordance with the specific gravity of the aggregates and the asphaltic content of the mix actually used to secure the design depth. The weight of the asphalt concrete is based on 95% of the theoretical maximum density.

INCIDENTALS

I-5 That portion of the right of way lying within the Clear Zone or within a minimum of 10 feet (3m), from the edge of pavement or surfacing or within the liits of the construction slopes beyond 10 feet (3m), shall be cleared and grubbed in accordance with the applicable VDOT Road and Bridge Specifications, Section 301, where sufficient right of way or construction easement is provided.

I-16 The "underground utilities" survey data on this project has been provided by consultant and copies are available from the Department.

I-18 All pavement markings and traffic flow arrows shown on the roadway construction plans are schematic only. The actual location and application of pavement markings shall be in accordance with Section 704 of the applicable VDOT Road and Bridge Specifications, MUTCD, sequence of construction/ traffic control plans, pavement marking plan sheets 4 thru 5 and as directed by the Engineer.

I-19 The following sources, under contract with VDOT, have provided information on this project:

Hydraulic Design - JMT
Roadway Design - JMT
Utility Design - N/A
Utility Designation - JMT
Utility Location - JMT / MISS UTILITY
Survey - JMT
Bridge Design - N/A

If questions or problems arise during construction, please contact the Project Designer. DO NOT CONTACT THE OUTSIDE SOURCES.

I-20 The Official Electronic PDF Version of the plans will override the paper copies or prints of specific layers. Portions of this plan assembly have been CADD generated. To assist in the preparation of the bid and construction of the project, Autocad format (.dwg) files were made available to the prime contractor during bids and after award of the contract.

I-21 All electronic plan assemblies will include the construction plans in two formats: .PDF files and Autocad format (.dwg) files. Only the .PDF files will be considered as part of the official plan assembly.

The Autocad format (.dwg) files are furnished only as information for the contractor. These plans are developed in layers to aid in readability. However, the construction items may or may not be in the proper layering scheme as described in the VDOT CADD Manual. The Autocad files will only match the scanned files if all levels are turned on. An Autocad Software license is required to be able to read these files.

STORMWATER MANAGEMENT

S-1 CLEARING AND GRUBBING OF SWM BASIN SITE - The area where the dam is to be constructed and the area upstream of the dam, to an elevation equal to the crest of the dam (maximum ponded water elevation), shall be cleared and grubbed in accordance with Section 301 of the applicable VDOT Road and Bridge Specifications.

EROSION AND SEDIMENT CONTROL (ESC)

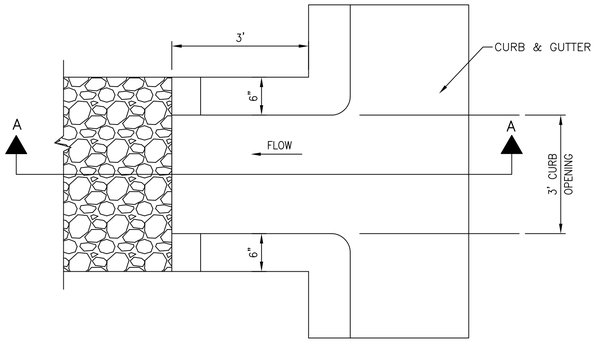
E-2 Rock for Check Dams, Drop Inlet Silt Traps, Erosion Control Stone and Riprap shall be in accordance with Section 203 and Section 414 of the applicable VDOT Road and Bridge Specifications.

PROJECT MANAGER Sandon Rodgers (757) 514-7683 (City of Suffolk)
SURVEYED BY Johnson, Mirmiran & Thompson (757) 499-1895
DESIGN SUPERVISED BY CITY OF SUFFOLK Department of Public Works - Engineering (757) 514-7683
DESIGNED BY Johnson, Mirmiran & Thompson (757) 499-1895

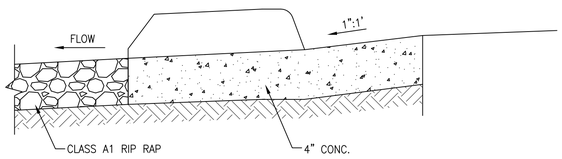
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.		U000-133-338, P-101	2A

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Johnson, Mirmiran and Thompson
Richmond, Virginia
ROADWAY ENGINEER



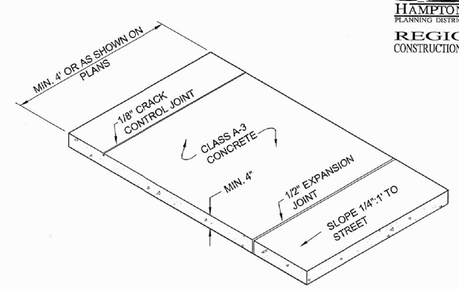
PLAN VIEW



SECTION A-A

CURB CUT

HAMPTON ROADS PLANNING DISTRICT COMMISSION
REGIONAL CONSTRUCTION STANDARDS



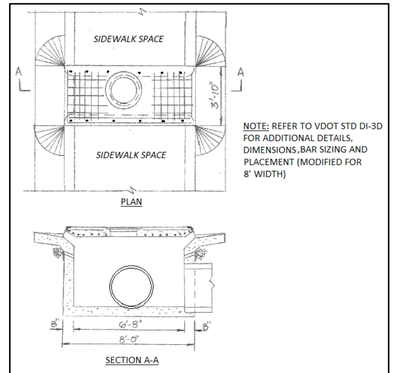
NOTES:

1. CRACK CONTROL JOINTS TO BE PROVIDED AT INTERVALS EQUAL TO THE WIDTH OF THE SIDEWALK BY SAWING, SCORING, "LEAVE-IN" INSERTS, OR CUTTER PLATES AND SHALL EXTEND INTO THE CONCRETE TO 1/4 OF THE DEPTH.
2. EXPANSION JOINTS TO BE INSTALLED AT INTERVALS NOT EXCEEDING 50', AND AT JUNCTION POINTS OF CURBS AND ENTRANCES, AND ON BOTH SIDES OF ALL SIDEWALK SECTIONS CONTAINING UTILITIES. PREMOLDED, 1/2" JOINT FILLER IS TO BE USED EXTENDING FROM BOTTOM OF SLAB TO 1/4" OF ITS TOP SURFACE.
3. AS SOON AS CONCRETE WILL NOT SLUMP, FACE FORMS ARE TO BE REMOVED, IRREGULARITIES REMOVED, A LIGHT BROOM FINISH GIVEN, AND A LIQUID MEMBRANE SEAL OR OTHER APPROVED CURING MEDIUM APPLIED.
4. SIDEWALKS ACROSS ENTRANCES SHALL HAVE A DEPTH OF SEVEN INCHES (7") WITH A MAXIMUM SLOPE OF 1":12".
5. THE CONTRACTOR SHALL PREVENT THE TEMPERATURE AT THE SURFACE OF THE CONCRETE FROM FALLING BELOW 40°F DURING THE FIRST 72 HOURS IMMEDIATELY FOLLOWING CONCRETE PLACEMENT. PROTECTIVE MATERIAL SHALL BE LEFT IN PLACE FOR AN ADDTIONAL 48 HOURS IF FREEZING AIR TEMPERATURES ARE EXPECTED TO CONTINUE.

SIDEWALK DETAIL

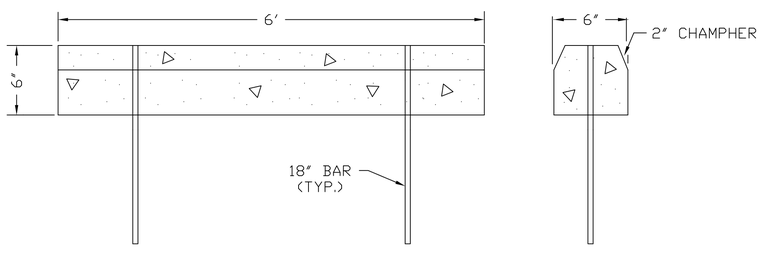
NOT TO SCALE

REFERENCE	CATEGORY	DATE	SHEET No.	DETAIL No.
200,502	CONCRETE ITEMS	12/10	1 OF 1	CI_09

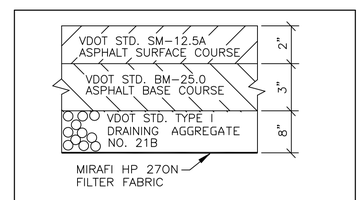


NOTE: REFER TO VDOT STD DI-3D FOR ADDITIONAL DETAILS, DIMENSIONS, BAR SIZING AND PLACEMENT (MODIFIED FOR 8' WIDTH)

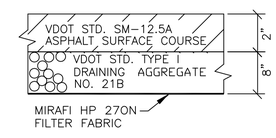
DI-3D MODIFIED CURB DROP INLET



STANDARD CONC. PARKING BLOCK



HEAVY DUTY PAVEMENT SECTION
(DRIVE AISLES AND BUS LANE)



LIGHT DUTY PAVEMENT SECTION
(PARKING SPACES)

NOTE: SUBGRADE TO BE COMPACTED TO 95% MAXIMUM THEORETICAL DENSITY @ OPTIMUM MOISTURE CONTENT

TYPICAL SECTIONS AND DETAILS

CITY OF SUFFOLK PLAN NO.	PROJECT	SHEET NO.
310-41100-2168 53850.140	U000-133-338	2A

PROJECT MANAGER Sandon Rodgers (757) 514-7683 (City of Suffolk)
SURVEYED BY Johnson, Mirmiran & Thompson (757) 499-1895
DESIGN SUPERVISED BY CITY OF SUFFOLK Department of Public Works - Engineering (757) 514-7683
DESIGNED BY Johnson, Mirmiran & Thompson (757) 499-1895

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.		U000-133-338, P-101	2B

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Johnson, Mirmiran and Thompson
Richmond, Virginia
ROADWAY ENGINEER

ROADWAY INCIDENTAL SUMMARY

	Mobilization	Construction Surveying	Clearing & Grubbing	Field Office Type II	CPM Construction Schedule (Includes Monthly Updates)	Demolition of pavement (flexible)	Removal of sidewalk	Removal of Curb & Gutter	Curb & Gutter CG-6		Curb & Gutter CG-7		6" Curb CG-2		6" Curb CG-3		Sidewalk				Saw Cut Pavement	Plain Hydr. Conc. Pave. 6"		Bike Racks	Concrete Wheel Stops (Bumper Blocks)	Trash Receptacles (Free Standing)	Bus Stop Shelter		Geotextile (Subgrade Stab.)	Select Material Type I, Min. CBR-30
									Standard	Radial	Standard	Radial	Standard	Radial	Standard	Radial	Hydr. Cement Conc. Sidewalk 4"	Hydro Cement Conc. Subwalk 7"	CG-12 Detectable Warning Surface												
	L.S.	L.S.	L.S.	MO.	L.S.	S.Y.	S.Y.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	S.Y.	S.Y.	S.Y.		L.F.	S.Y.		EA.	EA.	EA.	EA.		S.Y.	C.Y.
TOTAL	L.S.	L.S.	L.S.	M.O.	L.S.	1,392	36	138	874	165	–	159	674	268	183	252	519	89	28		140	18		N/A *	5	N/A *	N/A *		5,128	

* BY OTHERS

PAVEMENT SUMMARY

Location	SURFACE		BASE		SUBBASE			Remarks
	Asphalt Concrete Type SM-12.5A @ 220 LBS/S.Y.		Asphalt Concrete Base Course Type BM-25.0A		Aggregate Base Material Type 1 No. 21B			
			3" Depth			8" Depth		
	TON		TON			TON		
Drive Aisles	390		585			1561		
Parking Spaces	174					695		
Grand Total	564		585			2256		

⊗ Denotes items to be paid for on a basis of plan quantities in accordance with current Road and Bridge Specifications.

SIGNAGE AND PAVEMENT MARKING SUMMARY

Sign Panel	Square Tube Sign Post 2"	Concrete Foundation STP-1	Type B, Class 1 Pavement Line Marking, 4"	Handicap Pavement Parking Symbol
S.F.	L.F.	EA.	L.F.	EA.
40.5	110	11	2767	5

PROTECTIVE ITEM SUMMARY

	Allaying Dust	Group 2 Channelizing Devices	Flagger Service	Construction Signs	Portable Changeable Message Sign	Electronic Arrow	Temporary Safety Fence 4' (For SWMB)	Mowing	
	HOUR	DAY	HOURS	S.F.	HR.	HR.	L.F.	EA.	
TOTALS									

ROADWAY INCIDENTAL
& PAVEMENT SUMMARY

CITY OF SUFFOLK PLAN NO.	PROJECT	SHEET NO.
310-41100-2168 53850.140	U000-133-338	2B

PROJECT MANAGER Sandon Rodgers (757) 514-7683 (City of Suffolk)
SURVEYED BY Johnson, Mirmiran & Thompson (757) 499-1895
DESIGN SUPERVISED BY CITY OF SUFFOLK Department of Public Works - Engineering (757) 514-7683
DESIGNED BY Johnson, Mirmiran & Thompson (757) 499-1895

ROADSIDE DEVELOPMENT SHEET

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.		U000-133-338, P-101	2C

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Johnson, Mirmiran and Thompson
Richmond, Virginia
ROADWAY ENGINEER

CORE MIX

MIX	LBS./ ACRES	DESCRIPTION
1	▲	✳100% CERTIFIED FINE FESCUE
2	▲	100% CERTIFIED TALL FESCUE
3	▲	50% CERTIFIED TALL FESCUE ✳ 50% CERTIFIED FINE FESCUE
4	▲	50% ORCHARDGRASS 50% CERTIFIED KENTUCKY BLUEGRASS
5	▲	100% BERMUDAGRASS
TEMPORARY		
3/1 - 5/16 and 8/16 - 3/1	50 50	50% CERTIFIED TALL FESCUE 50% BARLEY, WINTER RYE OR WINTER WHEAT
5/16 - 8/16	50 50	50% FOXTAIL MILLET 50% CERTIFIED TALL FESCUE

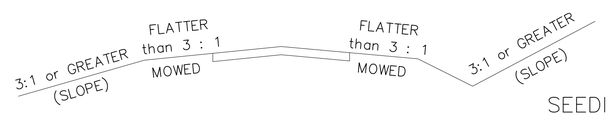
▲ ALL RATES TO BE SPECIFIED BY THE DISTRICT ROADSIDE MANAGER

✳ FINE FESCUES INCLUDE CHEWINGS, CREEPING RED, HARD, SHEEP

ADDITIVES

TYPE	LBS./ ACRES	DESCRIPTION
A	▲	100% LOVEGRASS
B	▲	100% BARLEY, WINTER RYE OR WINTER WHEAT
C	▲	100% FOXTAIL MILLET
D	▲	100% ANNUAL RYEGRASS
E	▲	100% CROWNVETCH (LEGUME)
F	▲	100% SERICEA LESPEDEZA (LEGUME)
G	▲	100% BIRDSFOOT TREFOIL (LEGUME)
H	▲	NON STANDARD SEED MIX
I	▲	
J	▲	
K	▲	

SECTION OF SEED LOCATIONS



ROADSIDE DEVELOPMENT SUMMARY

PROJECT NUMBERS	⊗ TOPSOIL 2" CLASS A | B	REGULAR SEED	OVER SEEDING	LIME	FERT. 15-30-15	LEGUME SEED	LEGUME OVER SEEDING	TEMPORARY SEEDING	
	ACRES	LBS.	LBS.	TONS	TONS	LBS.	LBS.	LBS.	
U000-133-338, P-101									

⊗ DENOTES ITEM(S) TO BE PAID FOR ON BASIS OF PLAN QUANTITIES IN ACCORDANCE WITH CURRENT ROAD AND BRIDGE SPECIFICATIONS.

SEEDING SCHEDULE

	SLOPES SEED MIX WITH ADDITIVE	MOWED SEED MIX WITH ADDITIVE	SLOPES SEED MIX WITH ADDITIVE	MOWED SEED MIX WITH ADDITIVE	SLOPES SEED MIX WITH ADDITIVE	MOWED SEED MIX WITH ADDITIVE
	SPRING MONTH & DATE 4/1 - 6/1		SUMMER MONTH & DATE 6/1 - 9/15		FALL & WINTER MONTH & DATE 9/15 - 4/1	
PROJECT NUMBERS U000-133-338, P-101						
✳ SPECIFY KIND OF FINE FESCUE						

NOTES:

APPROXIMATELY ___.___ACRES WILL BE DISTURBED ON THIS PROJECT AND WILL REQUIRE THE ESTABLISHMENT OF GRASSES AND/OR LEGUMES.

☆ NOTES FOR FIELD USE ONLY

OVERSEEDING RATES SHALL BE 100 PERCENT OF THE SEED MIXTURE SUPPLIED WITHOUT FERTILIZER.

THE ENGINEER WILL REQUIRE THE CONTRACTOR TO PERFORM SUPPLEMENTAL SEEDING WHEN LESS THAN 75 PERCENT UNIFORM STAND OF THE PERMANENT GRASS SPECIFIED IN THE MIXTURES IS OBTAINED. (ANNUAL SPECIES SUCH AS, RYE AND MILLET ARE TEMPORARY VARIETIES AND REQUIRE SUPPLEMENTAL SEEDING.)

NOTES APPLY TO SCHEDULE

LEGUME SEED MIXES (BIRDSFOOT TREFOIL, CROWNVETCH, AND SERICEA LESPEDEZA) AND WEEPING LOVEGRASS SHALL NOT BE USED ON SHOULDERS AND OTHER LOCATIONS FLATTER THAN 3:1 SLOPE.

LEGUME SEED SHALL BE INOCULATED WITH THE APPROPRIATE STRAIN AND RATE OF BACTERIA. FOR HYDROSEEDING, USE FIVE TIMES THE DRY SEEDING RATE OF INOCULATE.

A TEMPORARY MIX OR EROSION CONTROL MULCH, AS DIRECTED BY THE ENGINEER, IS TO BE USED ONLY ON AREAS THAT ARE TO BE REGRADED OR LATER DISTURBED, IF LEFT DORMANT FOR MORE THAN 15 DAYS.

EROSION CONTROL MULCH, AS DIRECTED BY THE ENGINEER, IS TO BE USED ON AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN 15 DAYS BETWEEN DECEMBER 1 AND FEBRUARY 28.

EROSION CONTROL MULCH, AS LISTED ON THE VDOT APPROVED PRODUCTS LIST, SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMENDATIONS.

EROSION CONTROL MULCH SHALL PROVIDE 100 PERCENT COVERAGE OF ALL DENUDED AREAS .

SPRING & SUMMER AND FALL & WINTER DEFINED FOR THE PURPOSE OF DETERMINING WHETHER HULLED OR UNHULLED BERMUDAGRASS AND SERICEA LESPEDEZA SEED IS REQUIRED:

SPRING & SUMMER 4/1 - 9/15 - USE HULLED SEED
FALL & WINTER 9/15 - 4/1 - USE UNHULLED SEED

TYPE I MULCH (STRAW) TO BE USED ON NEWLY SEEDED AREAS ADJACENT TO ALL WATERWAYS, WETLANDS, SWAMPS, OR ANY AREA IN WHICH DRAINAGE FLOWS TOWARD AREAS UNDER THE JURISDICTION OF THE ENVIRONMENTAL REGULATORY AGENCIES.

TYPE I MULCH SHALL BE APPLIED TO PROVIDE A MINIMUM 90 PERCENT COVERAGE.

TYPE I MULCH SHALL BE TACKED WITH FIBER MULCH AT THE RATE OF 750 LBS. PER ACRE AND/OR MULCH TACKIFIER.

TYPE II MULCH (FIBER MULCH) MAY BE SUBSTITUTED FOR TYPE I MULCH AT THE RECOMMENDATION OF THE DISTRICT ROADSIDE MANAGER.

TYPE II MULCH SHALL BE APPLIED AT A RATE OF 1500 LBS. (NET DRY WEIGHT) PER ACRE TO PROVIDE A MINIMUM OF 90 PERCENT COVERAGE, AND SHALL BE APPLIED IN A SEPARATE APPLICATION.

ALL TOPSOIL IS TO BE FREE OF HARD LUMPS, CLODS, ROCKS AND FOREIGN DEBRIS AND IS TO BE HAND RAKED TO TIE INTO EXISTING LAWNS.

ALL SEED MUST BE IN CONFORMANCE WITH VDOT SEED SPECIFICATIONS FOR GRASSES & LEGUMES AND BE PROVIDED AT THE PROJECT SITE IN BAGS NOT OPENED AND LABELED FOR USE ON VDOT PROJECTS WITH A GREEN TAG CERTIFYING INSPECTION BY THE VIRGINIA CROP IMPROVEMENT ASSOCIATION.

MIX REQUIREMENTS THIS PROJECT

RECOMMENDATIONS FOR THE APPLICATION OF SEED MIXTURES (CORE MIX AND ADDITIVES), FERTILIZER, LIME, ETC. ARE TO BE OBTAINED FROM THE DISTRICT ROADSIDE MANAGER.

ROADSIDE DEVELOPMENT SHEET

CITY OF SUFFOLK PLAN NO.	PROJECT	SHEET NO.
310-41100-2168 53850.140	U000-133-338	2C

PROJECT MANAGER Sandon Rodgers (757) 514-7683 (City of Suffolk)
SURVEYED BY Johnson, Mirmiran & Thompson (757) 499-1895
DESIGN SUPERVISED BY CITY OF SUFFOLK Department of Public Works - Engineering (757) 514-7683
DESIGNED BY Johnson, Mirmiran & Thompson (757) 499-1895

GRADING SUMMARY

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.		U000-133-338, P-101	2D

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Johnson, Mirmiran and Thompson
Richmond, Virginia
ROADWAY ENGINEER

⊗ Denotes items to be paid for on a basis of plan quantities in accordance with current VDOT Road and Bridge Specifications.

① Cut quantity shown does not include the material removed as Demolition of Pavement.

② Quantity shown for use in Grading Diagram only. See other Summaries for pay item(s).

③ Included in Total Regular Excavation.

④ Included in Roadway Cut quantity.

⑤ Quantities for Temporary Sediment Basins and Temporary Sediment Traps are included with the Stormwater Management Basin quantities.

⑥ Denotes pay item.

⑦ Included in total fill quantity.

⑧ This quantity comes from the computer listings and/or manual cross-sections and may be adjusted for other quantities.

⑨ Volumes obtained for Cut Ditches and Fill Ditches not included in computer listings.

⑩ Includes settlement of in-place soil.

* Unsuitable soils (as shown in sheet 2C) excavated from within the project limits should not be used for embankment fill and instead should be wasted off-site or as directed by the Project Engineer.

** Unsuitable material will be replaced with with Select Material Type I, Min CBR-30.

Location	⊗ Roadway Cut ① ⑧	Root Mat in Cut Sections	Root Mat in Fill Sections	⊗⑨ Cut - Ditches	⑨ Fill - Ditches	Unsuitable Material: Below Subgrade	Unsuitable Material: Above Subgrade	⑩ Roadway Fill ⑧	Entrances: Cut	Entrances: Fill	Total Regular Excavation ⑥	Total Fill	② Demolition of Pavement	② Minor Structure Excavation	⑤ Stormwater Management Basins: Cut	⑤ Stormwater Management Basins: Fill	⑥ Borrow
	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.
Godwin Blvd. Park & Ride															⑥		
FORMULAS	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
TOTALS	③	④	③ ⑦	③	⑦	③ ⑦	④	⑦	③	⑦						⑦	

FORMULAS

Roadway Cut (C) = Unadjusted Cut from Computer Listings or Manual Cross-Sections minus (-) Demolition of Pavement.

Roadway Fill (J) = Fill Required plus (+) Material for Backfill of Demolition of Pavement Areas in Fill (for heights of fill < 3 feet below subgrade)

Total Reg. Excav. (M) = C + E + F + H +K

Total Fill (N) = J + E + G + H + L + R

Borrow (S) = [N - ([C + F + K + P + Q - D - I] x Compaction Factor)] ÷ Compaction Factor for Borrow Site

(Embankment) (S) = N - (C + F +K + P +Q - D - I) (Embankment = Total Fill - Usable Cut) Estimated Material to be obtained off-site.

CITY OF SUFFOLK PLAN NO.	PROJECT	SHEET NO.
310-41100-2168 53850.140	U000-133-338	2D

PROJECT MANAGER Sandon Rodgers (757) 514-7683 (City of Suffolk)
SURVEYED BY Johnson, Mirmiran & Thompson (757) 499-1895
DESIGN SUPERVISED BY CITY OF SUFFOLK Department of Public Works - Engineering (757) 514-7683
DESIGNED BY Johnson, Mirmiran & Thompson (757) 499-1895

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.		U000-133-338, P-101	2E

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Johnson, Mirmiran and Thompson
Richmond, Virginia
ROADWAY ENGINEER

DRAINAGE SUMMARY

Str. No.	Cover		Storm Sewer Pipe				End Section ES-1			DI-3A				DI-3D MOD*		DI-1		Manhole MH-1 or 2	Frame & Cover		Rip-Rap Class A1		Post Installation Inspection	Comments
			15"	18"	27"		15"	18"	27"	L=4'				L=4'										
	Lin. Ft.		Lin. Ft.	Lin. Ft.	Lin. Ft.		Ea.	Ea.	Ea.	Ea.				Ea.		Ea.		Lin. Ft.	Ea.		Tons		Lin. Ft.	
1 - 2	2		52				1																52	
2																		3.5	1					IS-1 REQUIRED
2 - 3	2		54																				54	
3										1														IS-1 REQUIRED
3 - 5	2		40																				40	
4																		3.3	1					IS-1 REQUIRED
4 - 5	2		34																				34	
5										1														IS-1 REQUIRED
5 - 6	2				96																		96	
6																		3.3	1					IS-1 REQUIRED
6 - 7	2				192																		192	
7																		3.4	1					IS-1 REQUIRED
7 - 8	1				202				1														202	
9																1								
9 - 10	1		44																				44	
10														1										*WIDEN TO 8' FOR DUAL OPPOSING THROATS, IS-1 REQ'D.
10 - 12	1		148																				148	
11																1								
11 - 12	1		44																				44	
12														1										*WIDEN TO 8' FOR DUAL OPPOSING THROATS, IS-1 REQ'D.
12 - 13	2			166																			166	
13														1										*WIDEN TO 8' FOR DUAL OPPOSING THROATS, IS-1 REQ'D.
13 - 14	1			60				1															60	
15 - 16	2		24				1														39		24	RIP-RAP FOR CURB OPENING AND ARMORED OVERFLOW SPILLWAYS INCLUDED
Total			440	226	490		2	1	1	2				3		2		13.5	4		39		1,156	

DRAINAGE SUMMARY

CITY OF SUFFOLK PLAN NO.	PROJECT	SHEET NO.
310-41100-2168 53850.140	U000-133-338	2E

PROJECT MANAGER Sandon Rodgers (757) 514-7683 (City of Suffolk)
SURVEYED BY Johnson, Mirmiran & Thompson (757) 499-1895
DESIGN SUPERVISED BY CITY OF SUFFOLK Department of Public Works - Engineering (757) 514-7683
DESIGNED BY Johnson, Mirmiran & Thompson (757) 499-1895

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.		U000-133-338, P-101	2F

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Johnson, Mirmiran and Thompson
Richmond, Virginia
ROADWAY ENGINEER

EROSION AND SEDIMENT CONTROL SUMMARY

	Sheet Number	Protective Covering EC-2 (St'd. EC-2)	Soil Stabilization Mat St'd. EC-3: Soil Stabilization Mat EC-3 Type A	Soil Stabilization Mat St'd. EC-3: Soil Stabilization Mat EC-3 Type B	Soil Stabilization Mat St'd. EC-3: Soil Stabilization Mat EC-3 Type C	Rock Check Dams St'd. EC-4: Check Dam, Rock Ty. I	Rock Check Dams St'd. EC-4: Check Dam (Rock) Ty. II	Temporary Silt Barriers St'd. EC-5: Temp. Filter Barrier	Temporary Silt Barriers St'd. EC-5: Temp. Silt Fence	Inlet Protection St'd. EC-6: Inlet Protection, Type A	Inlet Protection St'd. EC-6: Inlet Protection, Type B	Inlet Protection, type C	Temporary Sediment Basin Excavation (For use with sediment basins)	Dewatering Basin (St'd. EC-8)	Temporary Diversion Dike (St'd. EC-9) *	Slope Drain (Temporary Berm & Slope Drain St'd. EC-10)	Eros. Control Stone Cl. I, EC-1 (For use with St'd. EC-10)	Stabilized Construction Entrance (St'd. EC-11) *	Temporary Diversion Channel St'd. EC-12: Temp. Dive. Channel Excavation	Temporary Diversion Channel St'd. EC-12: Temp. Dive. Channel Lining Class A	Temporary Diversion Channel St'd. EC-12: Temp. Dive. Channel Lining Class B	Temporary Vehicular Watercourse Crossing (St'd. EC-14)	Erosion Control Mulch	Temporary Sediment Riser Pipe (60" dia.)	Geotextile Fabric	Turbidity Curtain, Pervious	Turbidity Curtain, Impervious	Siltation Control Excavation		Construction Road Stabilization *	Tree Protection (Temp. Safety Fence 4" high)				
		SY	SY	SY	SY	EA	EA	LF	LF	EA	EA	EA	CY	EA	Foot	EA	Ton or SY	EA	CY	SY	SY	Lump Sum	SY or Acre	LF	SY	LF	LF	CY	EA	EA	LF				
Phase I	4(1)					7			925		1							1										195							
	5(1)					8			545																			131							
Subtotal						15			1470		1							1										326							
Phase II	4(3)								28	2	8	1																69							
	5(3)	56				1			450																			81							
Subtotal		0				1			478	2	8	1																150							
Total		56				16			1948	2	9	1						1										476							

* Not a pay item.

EROSION AND SEDIMENT CONTROL SUMMARY

CITY OF SUFFOLK PLAN NO.	PROJECT	SHEET NO.
310-41100-2168 53850.140	U000-133-338	2F

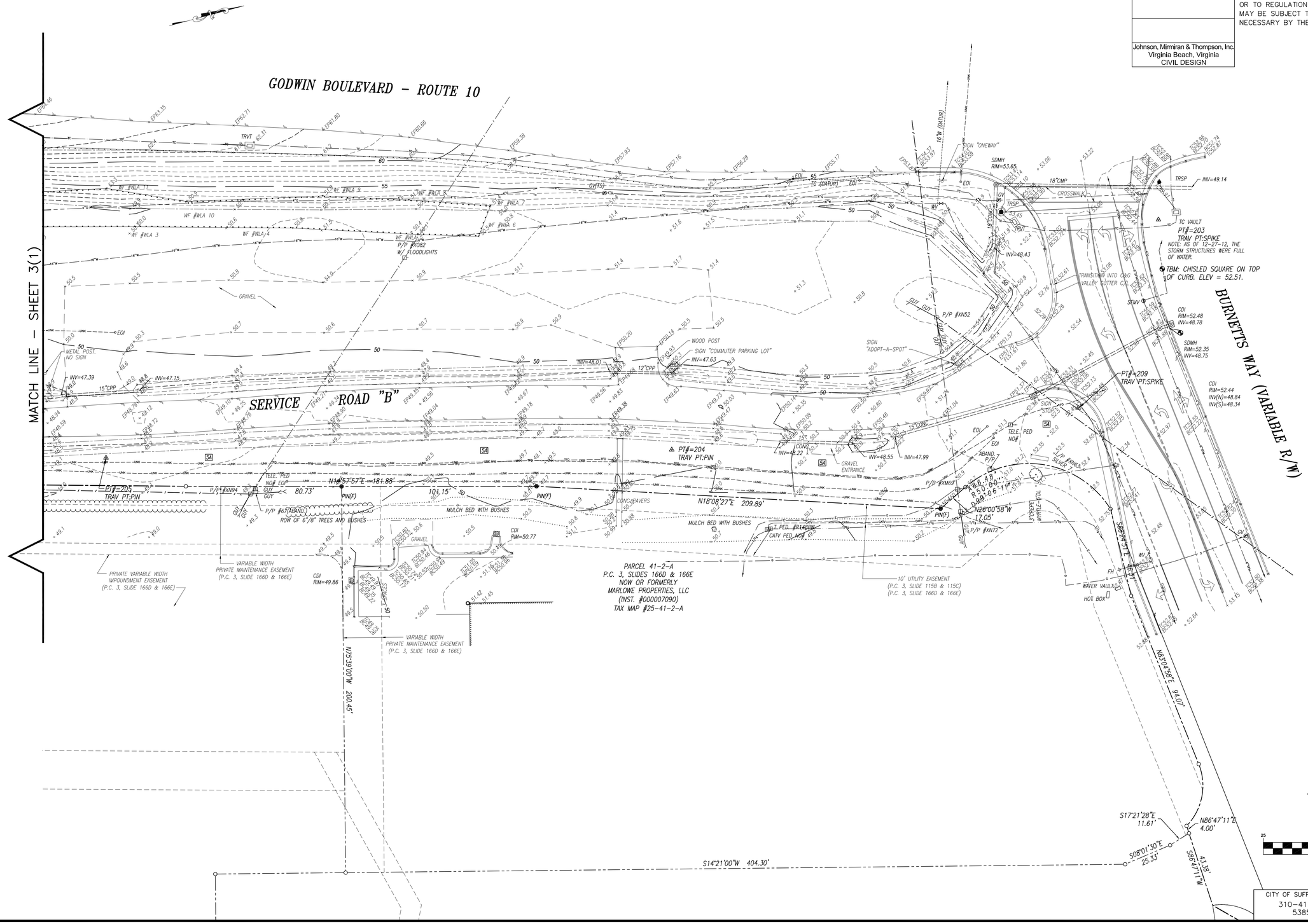
JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®
272 Bendix Road, Suite 260 Virginia Beach, VA 23452

PROJECT MANAGER SANDON RODGERS (757) 514-7683
SURVEYED BY JOHNSON, MIRMIRAN, & THOMPSON (757) 499-1895
DESIGN SUPERVISED BY CITY OF SUFFOLK DEPARTMENT OF PUBLIC WORKS - ENGINEERING (757) 514-7683
DESIGNED BY JOHNSON, MIRMIRAN, & THOMPSON (757) 499-1895

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO
	VA.		U000-133-338, P-101	3

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Johnson, Mirmiran & Thompson, Inc.
Virginia Beach, Virginia
CIVIL DESIGN



TOPOGRAPHIC SURVEY

GRAPHIC SCALE

25 0 25 50 100

(IN FEET)
1 inch = 25 ft.

CITY OF SUFFOLK PLAN NO.	PROJECT	SHEET NO.
310-41100-2168 53850.140	U000-133-338	3

$TIME$STAMP$

JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®
272 Bendix Road, Suite 260 Virginia Beach, VA 23452

PROJECT MANAGER SANDON RODGERS (757) 514-7683
SURVEYED BY JOHNSON, MIRMIRAN, & THOMPSON (757) 499-1895
DESIGN SUPERVISED BY CITY OF SUFFOLK DEPARTMENT OF PUBLIC WORKS - ENGINEERING (757) 514-7683
DESIGNED BY JOHNSON, MIRMIRAN, & THOMPSON (757) 499-1895

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO
	VA.		U000-133-338, P-101	3(1)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Johnson, Mirmiran & Thompson, Inc.
Virginia Beach, Virginia
CIVIL DESIGN

LEGEND

These standard symbols will be found in the drawing.

- BC- BOTTOM OF CURB
- BOLLARD
- BUSH
- CONC – CONCRETE
- -**DL – DIAMETER OF DRIP LINE
- EOI – END OF ELECTRONIC INFORMATION
- FH – FIRE HYDRANT
- FL – FLOW LINE
- GUY ANCHOR
- GV – GAS VALVE
- INV – INVERT
- MAGS – MAGNET NAIL SET
- MISCELLANEOUS FEATURE
- MONUMENT FOUND IN CONC
- L/P – LIGHT POLE
- PIN(F) – IRON PIN FOUND
- P/P – POWER POLE
- PVC – POLYVINYL CHLORIDE PIPE
- SIGN – SINGLE POST
- SSMH – SANITARY SEWER MANHOLE
- SDMH – STORM SEWER MANHOLE
- STREET LIGHT MAST
- SPOT GRADE LOCATION
- TC – TOP OF CURB
- TRAVERSE POINT
- TREE – DECIDUOUS
- TRSP – TRAFFIC SIGNAL POLE
- TRVT – TRAFFIC VAULT
- TVT – TELEPHONE VAULT
- WV – WATER VALVE
- (DATUR) – DIGITIZED ACCORDING TO UTILITY RECORDS

- SHRUB
- FENCE – METAL
- EDGE OF BUILDING
- INTERIOR PROPERTY LINE
- 18" CONC SD – STORM SEWER LINE
- EASEMENT LIMIT
- SWALE
- EDGE OF PAVEMENT
- 60 – CONTOUR MAJOR
- CONTOUR MINOR
- OVERHEAD WIRES
- RIGHT-OF-WAY LINE
- DRIP LINE
- TOP BANK / TOE SLOPE
- DELINEATED WETLANDS
- UNDERGROUND UTILITY LINES
- E – ELECTRIC
- G – NATURAL GAS
- SFM – SFM SANITARY FORCE MAIN
- T/Tg – TELEPHONE / COMMUNICATIONS
- TC – TC TRAFFIC CONTROL
- TFO – TELEPHONE FIBER OPT
- W – WATER

SURVEY NOTES:

1. THE MERIDIAN SOURCE FOR THIS SURVEY IS BASED ON THE VIRGINIA STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NAD 1983/1994 HARN. COORDINATE VALUES SHOWN ARE EXPRESSED IN U.S. SURVEY FEET. THE CITY OF SUFFOLK CONTROL REFERENCE POINTS USED TO ESTABLISH THE COORDINATE VALUES SHOWN HEREON ARE STATION 131 & 102.

2. VERTICAL DATUM: ELEVATIONS SHOWN HEREON ARE IN FEET AND REFER TO NAVD 88. ELEVATIONS ARE BASED UPON CITY OF SUFFOLK CONTROL STATION 131, ELEV. = 52.8.

3. PROPERTY SHOWN HEREON APPEARS TO FALL WITHIN FLOOD ZONES "X" (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) AS SHOWN ON F.E.M.A. FLOOD HAZARD MAP FOR THE CITY OF SUFFOLK, VIRGINIA COMMUNITY PANEL NO. 5101560115D, MAP REVISED: NOVEMBER 16, 2011.

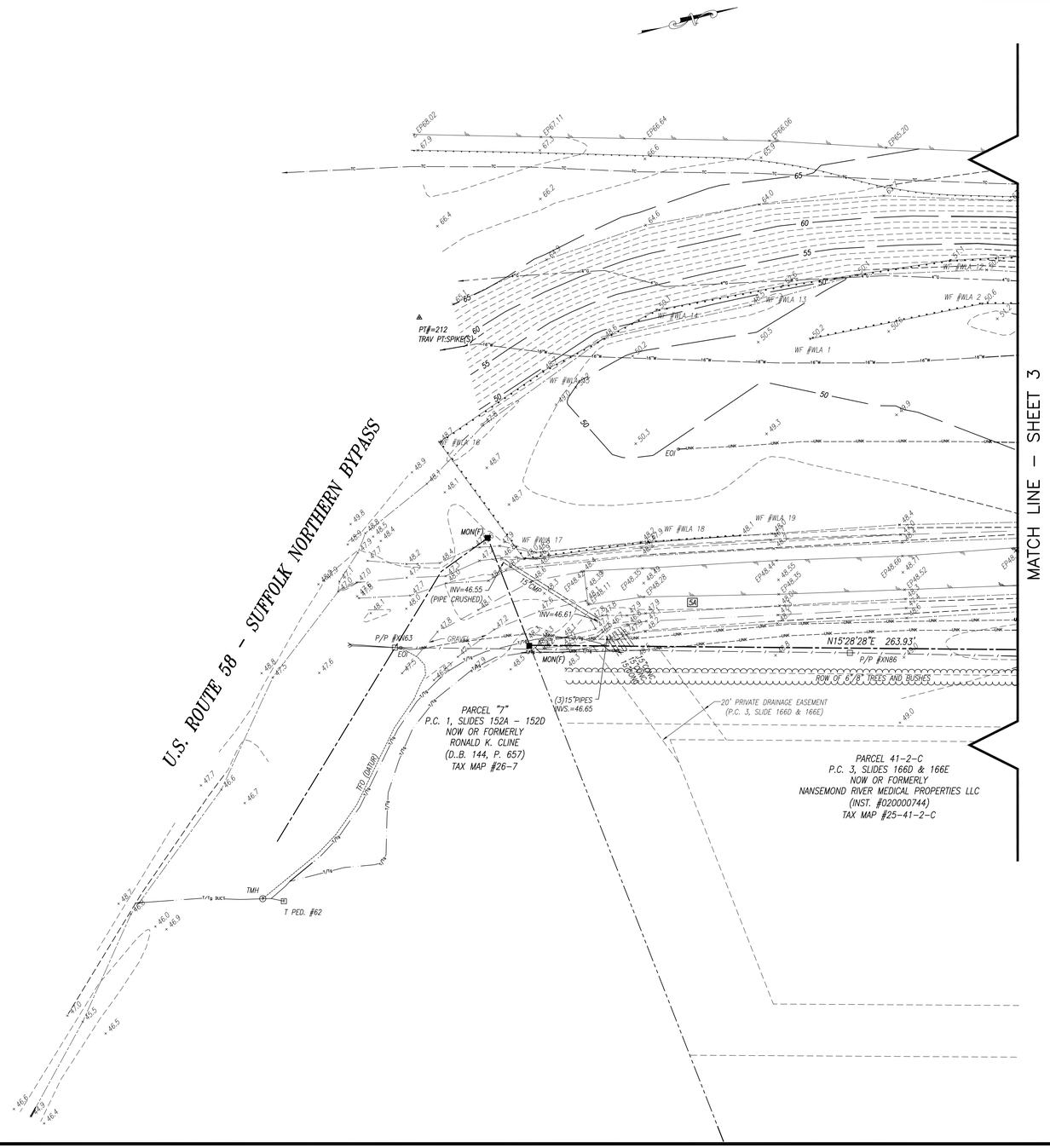
   NOTE: JMT, INC IS NOT A PARTY IN DETERMINING THE REQUIREMENTS FOR FLOOD INSURANCE ON THE PROPERTY SHOWN HEREON. THE APPROXIMATE LOCATION OF THE FLOOD ZONE LIMITS AS LISTED HEREON HAVE BEEN DETERMINED BY SCALING THE LOCATION DEPICTED ON THE AFOREMENTIONED FEMA-NFIP MAP. DUE TO IMPERFECTIONS IN BOTH THE FEMA MAPPING AND LOCATION METHODOLOGY, THESE LIMITS MAY CONTAIN SIGNIFICANT INACCURACIES. THIS SURVEY DOES NOT IMPLY THAT THIS PROPERTY WILL OR WILL NOT BE SUBJECT TO FLOODING. FOR FURTHER INFORMATION, CONTACT THE LOCAL COMMUNITY FLOOD OFFICIAL.

4. THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT AND MAY NOT SHOW ALL MATTERS AFFECTING THE PROPERTY.

5. THE UNDERGROUND PUBLIC AND FRANCHISE UTILITIES DEPICTED HEREIN ARE BASED ON A COMBINATION OF UTILITY MARKINGS PLACED IN THE FIELD IN RESPONSE TO A MISS UTILITY DESIGNER TICKET (TICKET #B235300235, DATED DECEMBER 18, 2012); AND ELECTRONIC FIELD DESIGNATION PERFORMED BY JMT. JMT HAS SECURED AND REVIEWED PUBLIC AND FRANCHISE UTILITY RECORDS, AND BASED ON THIS REVIEW, THE FACILITIES SHOWN ON THE RECORDS PROVIDED ARE REPRESENTED IN THE DATA CONTAINED HEREIN UNLESS OTHERWISE NOTED IN NOTE 5A. JMT ASSUMES RESPONSIBILITY FOR THE ACCURACY OF THE SURVEYED LOCATION OF THE PAINTED MARKS BASED ON THEIR LOCATION AT THE TIME OF THE SURVEY; HOWEVER, JMT MAKES NO GUARANTEE THAT THE EXACT LOCATIONS OF THE UTILITIES ARE AS PAINTED IN THE FIELD AND MAKES NO GUARANTEE THAT THE MISS UTILITY MARKINGS COMPRISE ALL UTILITIES IN THE AREA (EITHER ACTIVE OR INACTIVE).

   AN ELECTRONIC SWEEP WAS PERFORMED WITHIN THE PROJECT LIMITS TO VERIFY THE PRESENCE OF ANY ADDITIONAL CONDUCTIVE FACILITIES. ADDITIONAL CONDUCTIVE SIGNALS WERE OBTAINED AT LOCATIONS WHERE NO "MISS UTILITY" MARKINGS WERE PRESENT, AND THESE SIGNALS ARE SHOWN AS "UNK" LINES ON THE SURVEY CONTAINED HEREIN. JMT IS UNABLE TO DETERMINE THE DISPOSITION OF THESE UNKNOWN CONDUCTORS AS NO IDENTIFIABLE STRUCTURES WERE VISUALLY PRESENT IN THE FIELD AND NO OTHER UTILITIES ARE SHOWN ON RECORDS PROVIDED. JMT MAKES NO GUARANTEE THAT NO OTHER FACILITIES (CONDUCTIVE OR NON-CONDUCTIVE) ARE PRESENT WITHIN THE PROJECT LIMITS.

5A. VERIZON RECORDS INDICATE THE PRESENCE OF TWO (2) COPPER TELEPHONE CABLES IN THE AREA. NO FIELD MARKINGS WERE PLACED DURING THE MISS UTILITY DESIGNER TICKET PROCESS, AND THE VERIZON MISS UTILITY LOCATOR INDICATED VERBALLY THAT NO COPPER CABLE FACILITIES ARE PRESENT IN THE AREA. SEVERAL SIGNALS ON UNKNOWN CONDUCTORS WERE OBTAINED IN THE AREA DURING THE ELECTRONIC SWEEP AS SHOWN. IF VERIZON COPPER CABLES ARE PRESENT, SAID UNKNOWN CONDUCTORS MAY BE THESE CABLES; HOWEVER UNABLE TO CONFIRM.



TOPOGRAPHIC SURVEY

GRAPHIC SCALE

25 0 25 50 100

(IN FEET)
1 inch = 25 ft.

CITY OF SUFFOLK PLAN NO.	PROJECT	SHEET NO.
310-41100-2168 53850.140	U000-133-338	3(1)

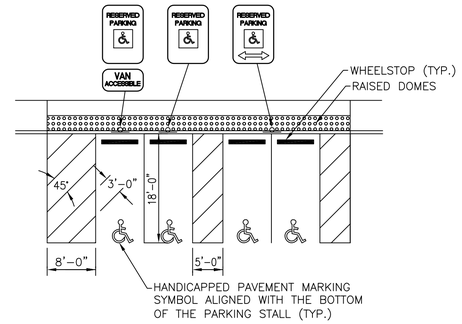
$TIME$STAMP$

PROJECT MANAGER SANDON RODGERS (757) 514-7683
SURVEYED BY JOHNSON, MIRMIRAN, & THOMPSON (757) 499-1895
DESIGN SUPERVISED BY CITY OF SUFFOLK DEPARTMENT OF PUBLIC WORKS - ENGINEERING (757) 514-7683
DESIGNED BY JOHNSON, MIRMIRAN, & THOMPSON (757) 499-1895

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.		U000-133-338, P-101	4

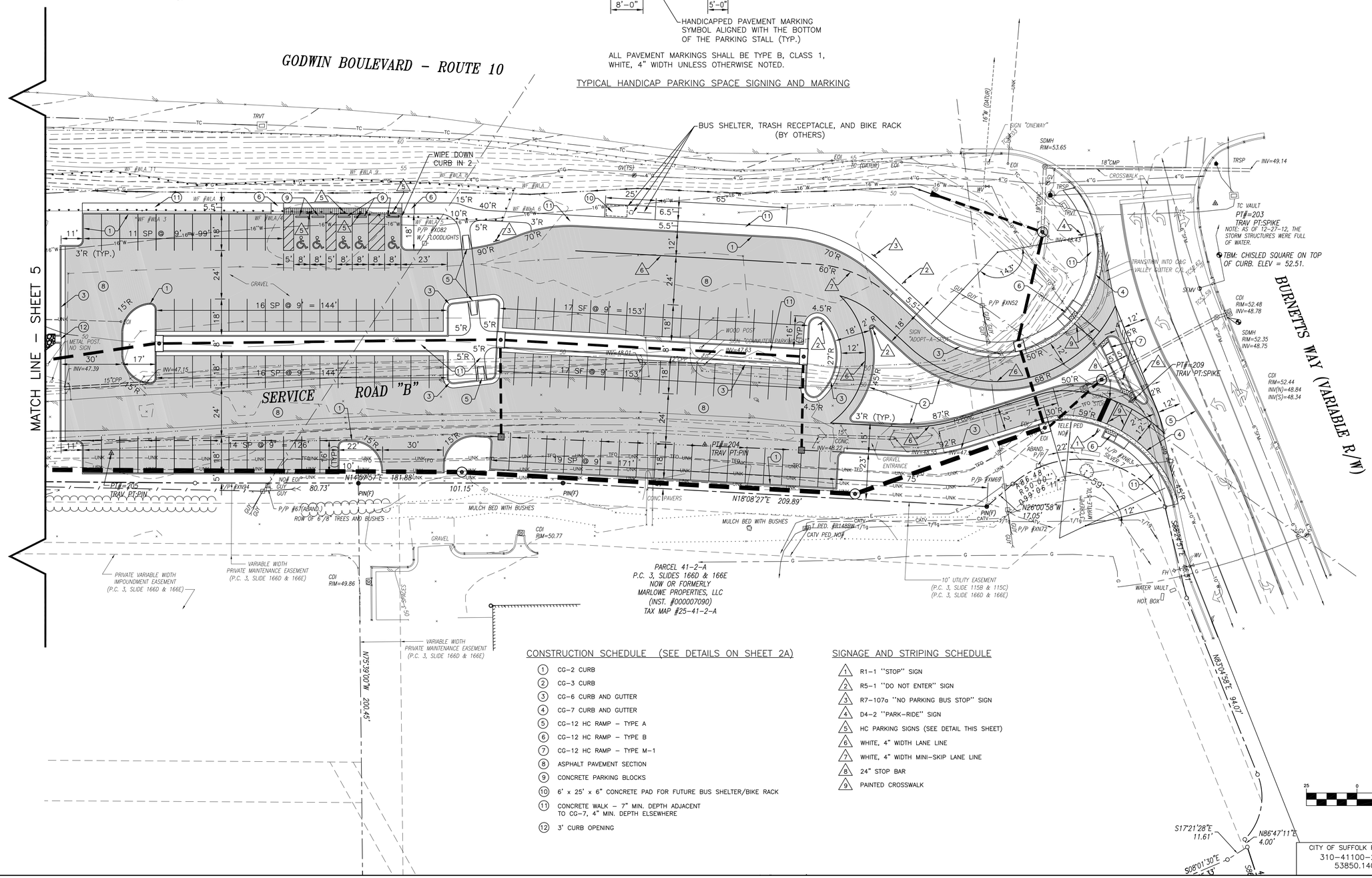
DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Johnson, Mirmiran & Thompson, Inc.
Virginia Beach, Virginia
CIVIL DESIGN



ALL PAVEMENT MARKINGS SHALL BE TYPE B, CLASS 1, WHITE, 4" WIDTH UNLESS OTHERWISE NOTED.

TYPICAL HANDICAP PARKING SPACE SIGNING AND MARKING



CONSTRUCTION SCHEDULE (SEE DETAILS ON SHEET 2A)

1. CG-2 CURB
2. CG-3 CURB
3. CG-6 CURB AND GUTTER
4. CG-7 CURB AND GUTTER
5. CG-12 HC RAMP - TYPE A
6. CG-12 HC RAMP - TYPE B
7. CG-12 HC RAMP - TYPE M-1
8. ASPHALT PAVEMENT SECTION
9. CONCRETE PARKING BLOCKS
10. 6' x 25' x 6" CONCRETE PAD FOR FUTURE BUS SHELTER/BIKE RACK
11. CONCRETE WALK - 7" MIN. DEPTH ADJACENT TO CG-7, 4" MIN. DEPTH ELSEWHERE
12. 3' CURB OPENING

SIGNAGE AND STRIPING SCHEDULE

1. R1-1 "STOP" SIGN
2. R5-1 "DO NOT ENTER" SIGN
3. R7-107a "NO PARKING BUS STOP" SIGN
4. D4-2 "PARK-RIDE" SIGN
5. HC PARKING SIGNS (SEE DETAIL THIS SHEET)
6. WHITE, 4" WIDTH LANE LINE
7. WHITE, 4" WIDTH MINI-SKIP LANE LINE
8. 24" STOP BAR
9. PAINTED CROSSWALK

SITE LAYOUT

GRAPHIC SCALE

25 0 25 50 100

(IN FEET)
1 inch = 25 ft.

CITY OF SUFFOLK PLAN NO.	PROJECT	SHEET NO.
310-41100-2168 53850.140	U000-133-338	4

JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®
272 Bendix Road, Suite 260 Virginia Beach, VA 23452

$TIME$STAMP$

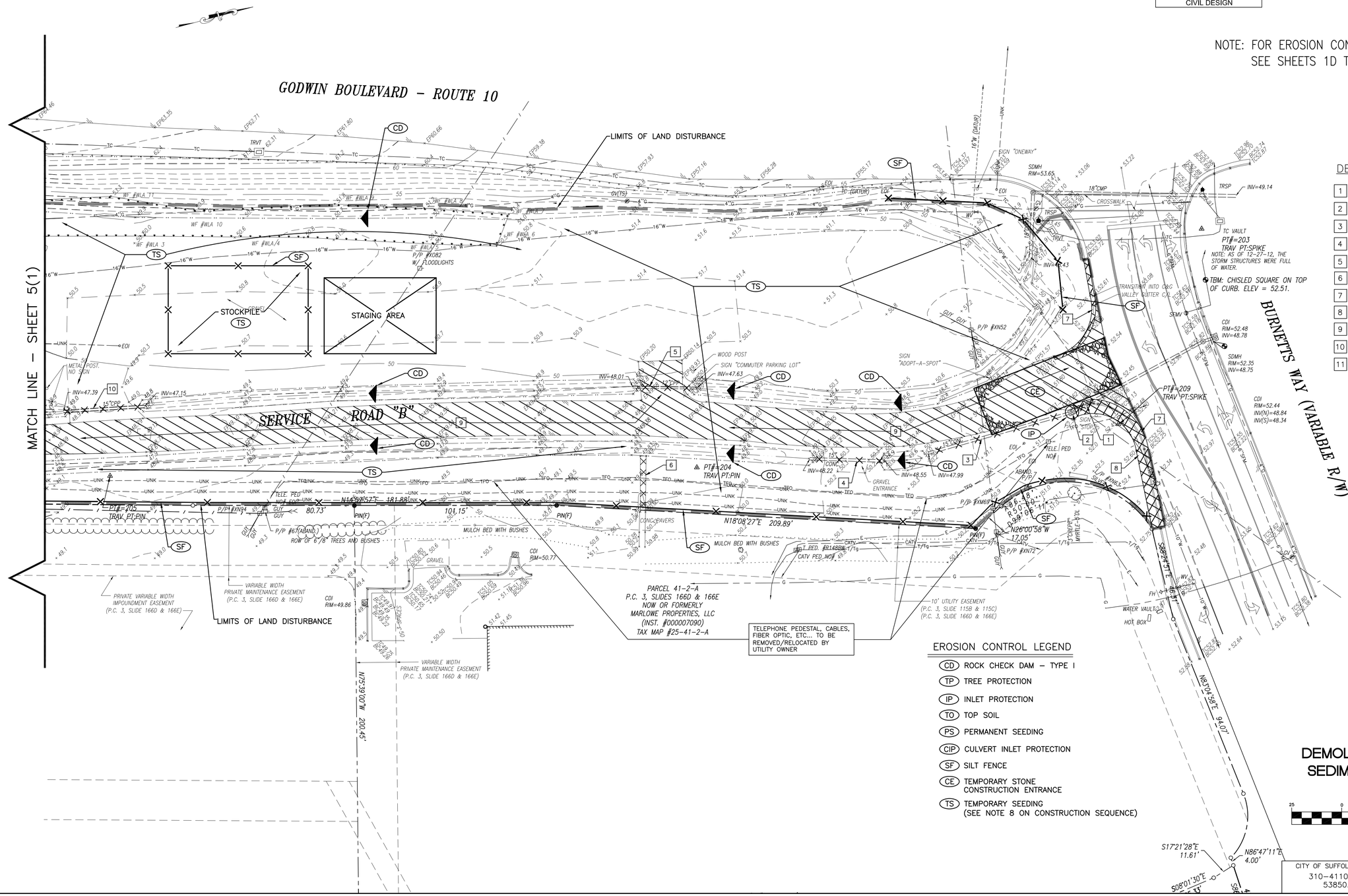
PROJECT MANAGER SANDON RODGERS (757) 514-7683
SURVEYED BY JOHNSON, MIRMIRAN, & THOMPSON (757) 499-1895
DESIGN SUPERVISED BY CITY OF SUFFOLK DEPARTMENT OF PUBLIC WORKS - ENGINEERING (757) 514-7683
DESIGNED BY JOHNSON, MIRMIRAN, & THOMPSON (757) 499-1395

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.		U000-133-338, P-101	4(1)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Johnson, Mirmiran & Thompson, Inc.
Virginia Beach, Virginia
CIVIL DESIGN

NOTE: FOR EROSION CONTROL NOTES AND DETAILS SEE SHEETS 1D THRU 1D(2)



DEMOLITION SCHEDULE

1	REMOVE 10'± EX. 15" PIPE
2	REMOVE EX. CDI (H=4.1'±)
3	REMOVE EX. 72'± EX. 15" PIPE
4	REMOVE 37'± EX. 15" PIPE
5	REMOVE 32'± EX. 12" PIPE
6	REMOVE EX. CONCRETE PAVERS
7	REMOVE EX. CONCRETE C&G/VALLEY GUTTER
8	REMOVE EX. CONCRETE WALK
9	REMOVE EX. ASPHALT PAVEMENT
10	REMOVE 40'± EX. 15" PIPE
11	REMOVE 40'± EX. 15" PIPE

EROSION CONTROL LEGEND

CD	ROCK CHECK DAM - TYPE I
TP	TREE PROTECTION
IP	INLET PROTECTION
TO	TOP SOIL
PS	PERMANENT SEEDING
CIP	CULVERT INLET PROTECTION
SF	SILT FENCE
CE	TEMPORARY STONE CONSTRUCTION ENTRANCE
TS	TEMPORARY SEEDING (SEE NOTE 8 ON CONSTRUCTION SEQUENCE)

DEMOLITION AND EROSION AND SEDIMENT CONTROL - PHASE I

GRAPHIC SCALE

25 0 25 50 100

(IN FEET)
1 inch = 25 ft.

CITY OF SUFFOLK PLAN NO.	PROJECT	SHEET NO.
310-41100-2168 53850.140	U000-133-338	4(1)

JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®
272 Bendix Road, Suite 260 Virginia Beach, VA 23452

$TIME$STAMP$

JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®
272 Bendix Road, Suite 260 Virginia Beach, VA 23452

PROJECT MANAGER SANDON RODGERS (757) 514-7683
SURVEYED BY JOHNSON, MIRMIRAN, & THOMPSON (757) 499-1895
DESIGN SUPERVISED BY CITY OF SUFFOLK DEPARTMENT OF PUBLIC WORKS - ENGINEERING (757) 514-7683
DESIGNED BY JOHNSON, MIRMIRAN, & THOMPSON (757) 499-1395

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.		U000-133-338, P-101	4(2)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Johnson, Mirmiran & Thompson, Inc.
Virginia Beach, Virginia
CIVIL DESIGN

DRAINAGE SCHEDULE

(1) 15" ES-1 ENDSECTION
INV 50.50

(1) (2) 56' - 15" RCP (INCL 15" ES-1) @ 3.04%
INV IN = 50.50
INV OUT = 48.80

(2) MH-1
TOP = 52.60
INV OUT = 48.43
IS-1 REQ'D.

(2) (3) 54' - 18" RCP @ 0.44%
INV IN = 48.43
INV OUT = 48.19

(3) DI -3A
TOP = 52.12
INV = 48.19
IS-1 REQ'D

(3) (5) 40' - 18" RCP @ 0.62%
INV IN = 48.19
INV OUT = 47.94

(4) MH-1
TOP = 52.40
INV = 48.39
IS-1 REQ'D.

(4) (5) 34' - 15" RCP @ 1.18%
INV IN = 48.34
INV OUT = 47.94

(5) DI-3A
TOP = 51.75
INV = 47.54
IS-1 REQ'D.

(5) (6) 96'- 27" RCP @ 0.15%
INV IN = 47.54
INV OUT = 47.40

(6) MH-1
TOP = 51.40
INV = 47.40
IS-1 REQ'D.

(6) (7) 192' - 27" RCP @ 0.15%
INV IN = 47.40
INV OUT = 47.11

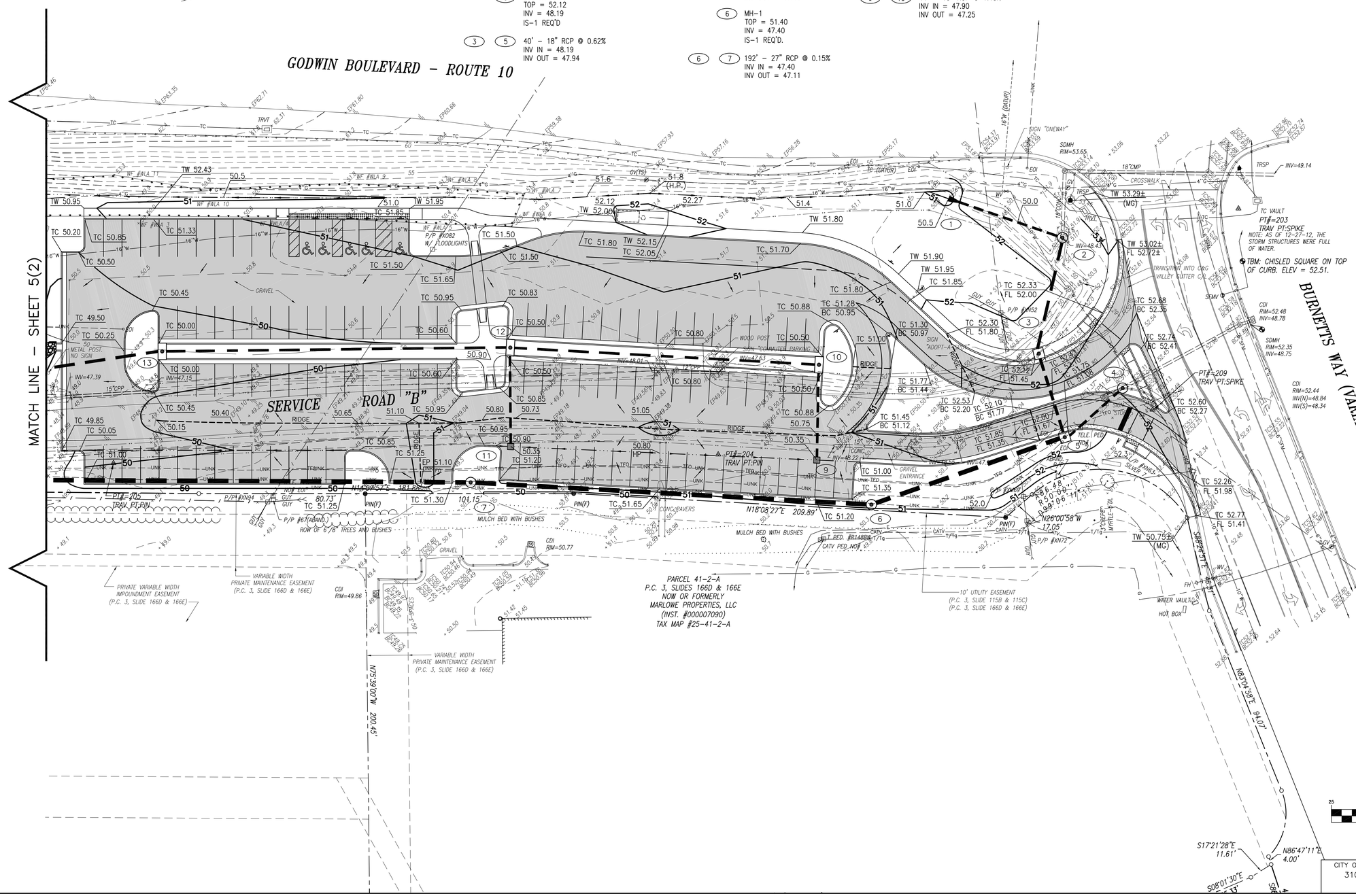
(7) MH-1
TOP = 51.20
INV = 47.11
IS-1 REQ'D.

(7) (8) 208' - 27" RCP @ 0.15% (INCL 27" ES-1)
INV IN = 47.11
INV OUT = 46.80

(8) 27" ES-1 ENDSECTION
INV = 46.80

(9) DI-1
TOP = 50.35
INV = 47.90

(9) (10) 44' - 15" RCP @ 1.48%
INV IN = 47.90
INV OUT = 47.25



DRAINAGE SCHEDULE (CONT.)

(10) DI-3D MOD (WIDEN TO 8' FOR OPPOSING DUAL THROAT OPENINGS)
TOP = 50.50
INV = 47.25
IS-1 REQ'D.

(10) (12) 148' - 15" RCP @ 0.13%
INV IN = 47.25
INV OUT = 47.06

(11) DI-1
TOP = 50.35
INV = 47.90

(11) (12) 44' - 15" RCP @ 1.91%
INV IN = 47.90
INV OUT = 47.06

(12) DI-3D MOD (WIDEN TO 8' FOR OPPOSING DUAL THROAT OPENINGS)
TOP = 50.50
INV = 47.06
IS-1 REQ'D.

(12) (13) 166' - 18" RCP @ 0.15%
INV IN = 47.06
INV OUT = 46.81

(13) DI-3D MOD (WIDEN TO 8' FOR OPPOSING DUAL THROAT OPENINGS)
TOP = 50.00
INV = 46.81
IS-1 REQ'D.

(13) (14) 64' - 18" RCP @ 0.38% (INCL 18" ES-1)
INV IN = 46.81
INV OUT = 46.57

(14) 18" ES-1 ENDSECTION
INV = 46.57

(15) (16) 28' - 15" RCP @ 1.43% (INCL. 15" ES-1)
INV IN = 46.00
INV OUT = 45.60

(16) 15" ES-1 ENDSECTION
INV = 45.60

SITE GRADING

GRAPHIC SCALE

25 0 25 50 100

(IN FEET)
1 inch = 25 ft.

CITY OF SUFFOLK PLAN NO.	PROJECT	SHEET NO.
310-41100-2168 53850.140	U000-133-338	4(2)

$TIME$STAMP$

JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®
272 Bendix Road, Suite 260 Virginia Beach, VA 23452

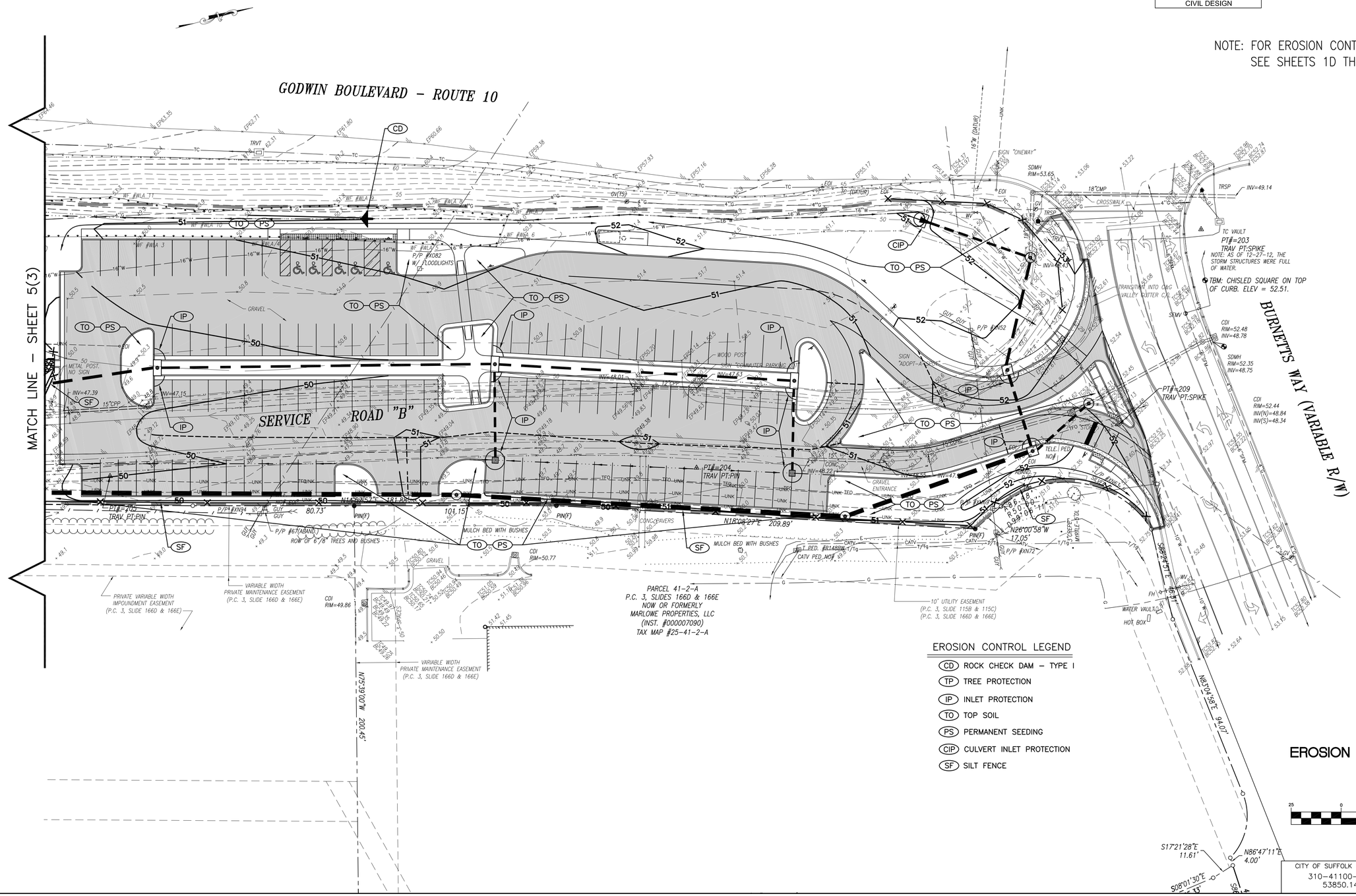
PROJECT MANAGER SANDON RODGERS (757) 514-7683
SURVEYED BY JOHNSON, MIRMIRAN, & THOMPSON (757) 499-1895
DESIGN SUPERVISED BY CITY OF SUFFOLK DEPARTMENT OF PUBLIC WORKS - ENGINEERING (757) 514-7683
DESIGNED BY JOHNSON, MIRMIRAN, & THOMPSON (757) 499-1395

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.		U000-133-338, P-101	4(3)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Johnson, Mirmiran & Thompson, Inc.
Virginia Beach, Virginia
CIVIL DESIGN

NOTE: FOR EROSION CONTROL NOTES AND DETAILS SEE SHEETS 1D THRU 1D(2)



EROSION CONTROL LEGEND

- (CD) ROCK CHECK DAM - TYPE I
- (TP) TREE PROTECTION
- (IP) INLET PROTECTION
- (TO) TOP SOIL
- (PS) PERMANENT SEEDING
- (CIP) CULVERT INLET PROTECTION
- (SF) SILT FENCE

EROSION AND SEDIMENT CONTROL PHASE II

GRAPHIC SCALE

25 0 25 50 100

(IN FEET)
1 inch = 25 ft.

CITY OF SUFFOLK PLAN NO.	PROJECT	SHEET NO.
310-41100-2168 53850.140	U000-133-338	4(3)

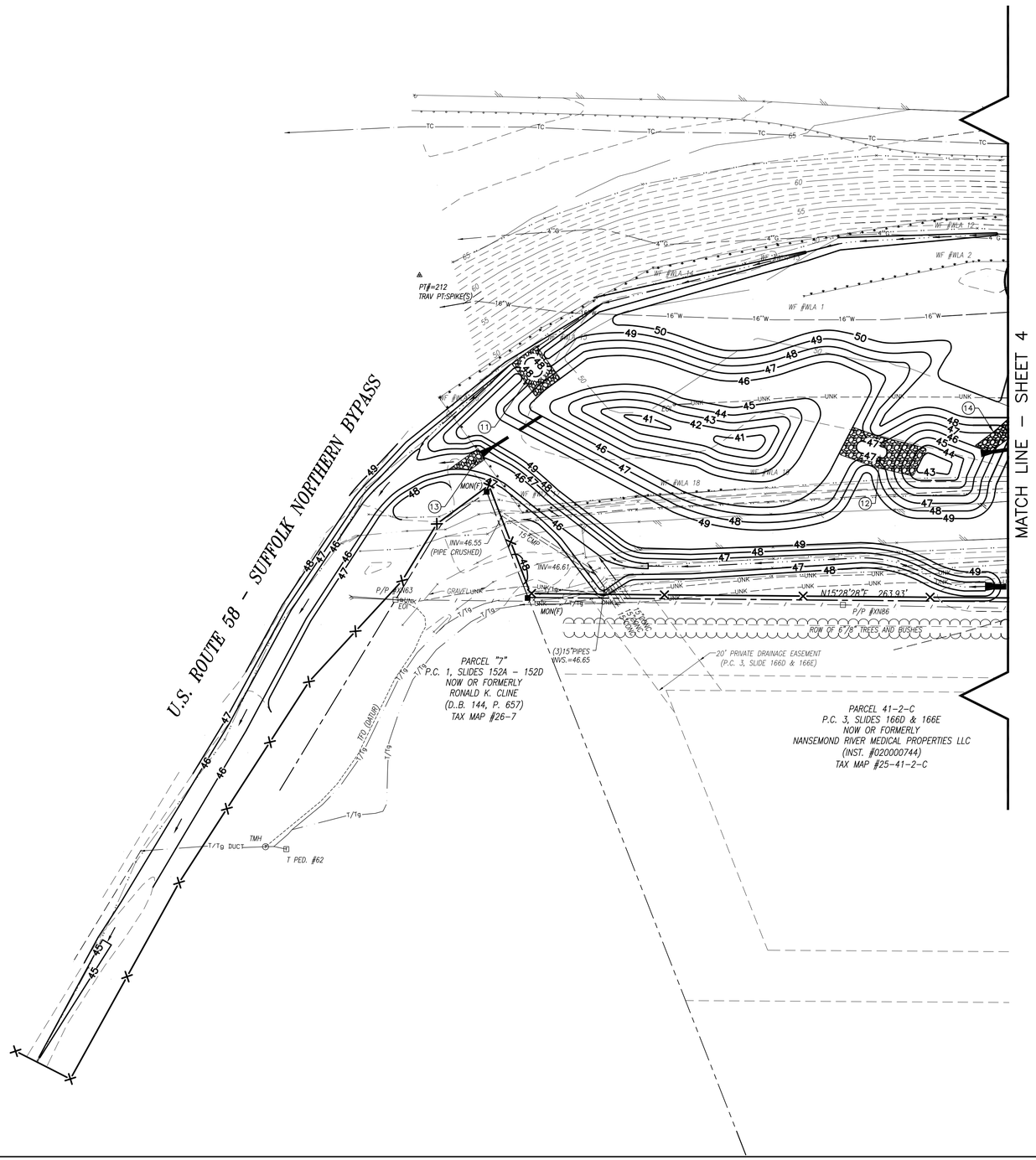
$TIME$STAMP$

JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®
272 Bendix Road, Suite 260 Virginia Beach, VA 23452

PROJECT MANAGER SANDON RODGERS (757) 514-7683
SURVEYED BY JOHNSON, MIRMIRAN, & THOMPSON (757) 499-1895
DESIGN SUPERVISED BY CITY OF SUFFOLK DEPARTMENT OF PUBLIC WORKS - ENGINEERING (757) 514-7683
DESIGNED BY JOHNSON, MIRMIRAN, & THOMPSON (757) 499-1895

CONSTRUCTION SCHEDULE (CONT.)

(11) CLASS A1 RIP RAP, W=12', L=16', D=9" (MIN.) w/UNDERLYNING FILTER FABRIC
(12) CLASS A1 RIP RAP, W=12', L=30', D=9" (MIN.) w/UNDERLYNING FILTER FABRIC
(13) CLASS A1 RIP RAP, W=5', L=10', D=9" (MIN.) w/UNDERLYNING FILTER FABRIC
(14) CLASS A1 RIP RAP, W=5', L=20', D=9" (MIN.) w/UNDERLYNING FILTER FABRIC



REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.		U000-133-338, P-101	5

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Johnson, Mirmiran & Thompson, Inc.
Virginia Beach, Virginia
CIVIL DESIGN

SITE LAYOUT

GRAPHIC SCALE

25 0 25 50 100

(IN FEET)
1 inch = 25 ft.

CITY OF SUFFOLK PLAN NO.	PROJECT	SHEET NO.
310-41100-2168 53850.140	U000-133-338	5

$TIME$STAMP$

JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®
272 Bendix Road, Suite 260 Virginia Beach, VA 23452

PROJECT MANAGER SANDON RODGERS (757) 514-7683
SURVEYED BY JOHNSON, MIRMIRAN, & THOMPSON (757) 499-1895
DESIGN SUPERVISED BY CITY OF SUFFOLK DEPARTMENT OF PUBLIC WORKS - ENGINEERING (757) 514-7683
DESIGNED BY JOHNSON, MIRMIRAN, & THOMPSON (757) 499-1895

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.		U000-133-338, P-101	5(1)

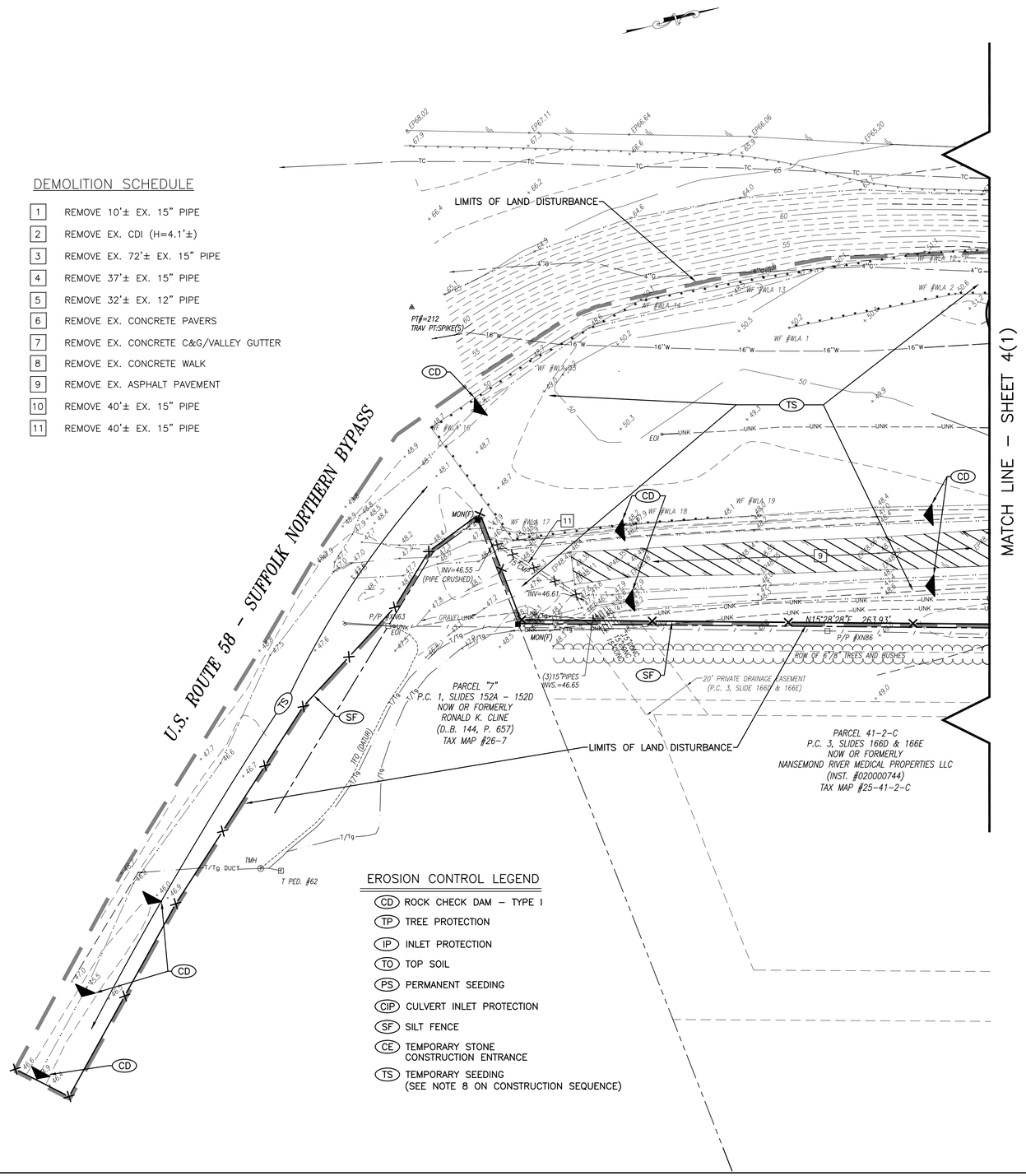
DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Johnson, Mirmiran & Thompson, Inc.
Virginia Beach, Virginia
CIVIL DESIGN

NOTE: FOR EROSION CONTROL NOTES AND DETAILS SEE SHEETS 1D THRU 1D(2)

DEMOLITION SCHEDULE

1	REMOVE 10'± EX. 15" PIPE
2	REMOVE EX. CDI (H=4.1'±)
3	REMOVE EX. 72'± EX. 15" PIPE
4	REMOVE 37'± EX. 15" PIPE
5	REMOVE 32'± EX. 12" PIPE
6	REMOVE EX. CONCRETE PAVERS
7	REMOVE EX. CONCRETE C&G/VALLEY GUTTER
8	REMOVE EX. CONCRETE WALK
9	REMOVE EX. ASPHALT PAVEMENT
10	REMOVE 40'± EX. 15" PIPE
11	REMOVE 40'± EX. 15" PIPE



EROSION CONTROL LEGEND

CD	ROCK CHECK DAM - TYPE I
TP	TREE PROTECTION
IP	INLET PROTECTION
TO	TOP SOIL
PS	PERMANENT SEEDING
CIP	CULVERT INLET PROTECTION
SF	SILT FENCE
CE	TEMPORARY STONE CONSTRUCTION ENTRANCE
TS	TEMPORARY SEEDING (SEE NOTE 8 ON CONSTRUCTION SEQUENCE)

DEMOLITION AND EROSION AND SEDIMENT CONTROL - PHASE I

GRAPHIC SCALE

25 0 25 50 100

(IN FEET)
1 inch = 25 ft.

CITY OF SUFFOLK PLAN NO.	PROJECT	SHEET NO.
310-41100-2168 53850.140	U000-133-338	5(1)

$TIME$$STAMP$

JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®
272 Bendix Road, Suite 260 Virginia Beach, VA 23452

PROJECT MANAGER SANDON RODGERS (757) 514-7683
SURVEYED BY JOHNSON, MIRMIRAN, & THOMPSON (757) 499-1895
DESIGN SUPERVISED BY CITY OF SUFFOLK DEPARTMENT OF PUBLIC WORKS - ENGINEERING (757) 514-7683
DESIGNED BY JOHNSON, MIRMIRAN, & THOMPSON (757) 499-1895

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.		U000-133-338, P-101	5(2)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Johnson, Mirmiran & Thompson, Inc.
Virginia Beach, Virginia
CIVIL DESIGN

DRAINAGE SCHEDULE (CONT.)

(7) (8) 208' - 27" RCP @ 0.15% (INCL 27" ES-1)
INV IN = 47.11
INV OUT = 46.80

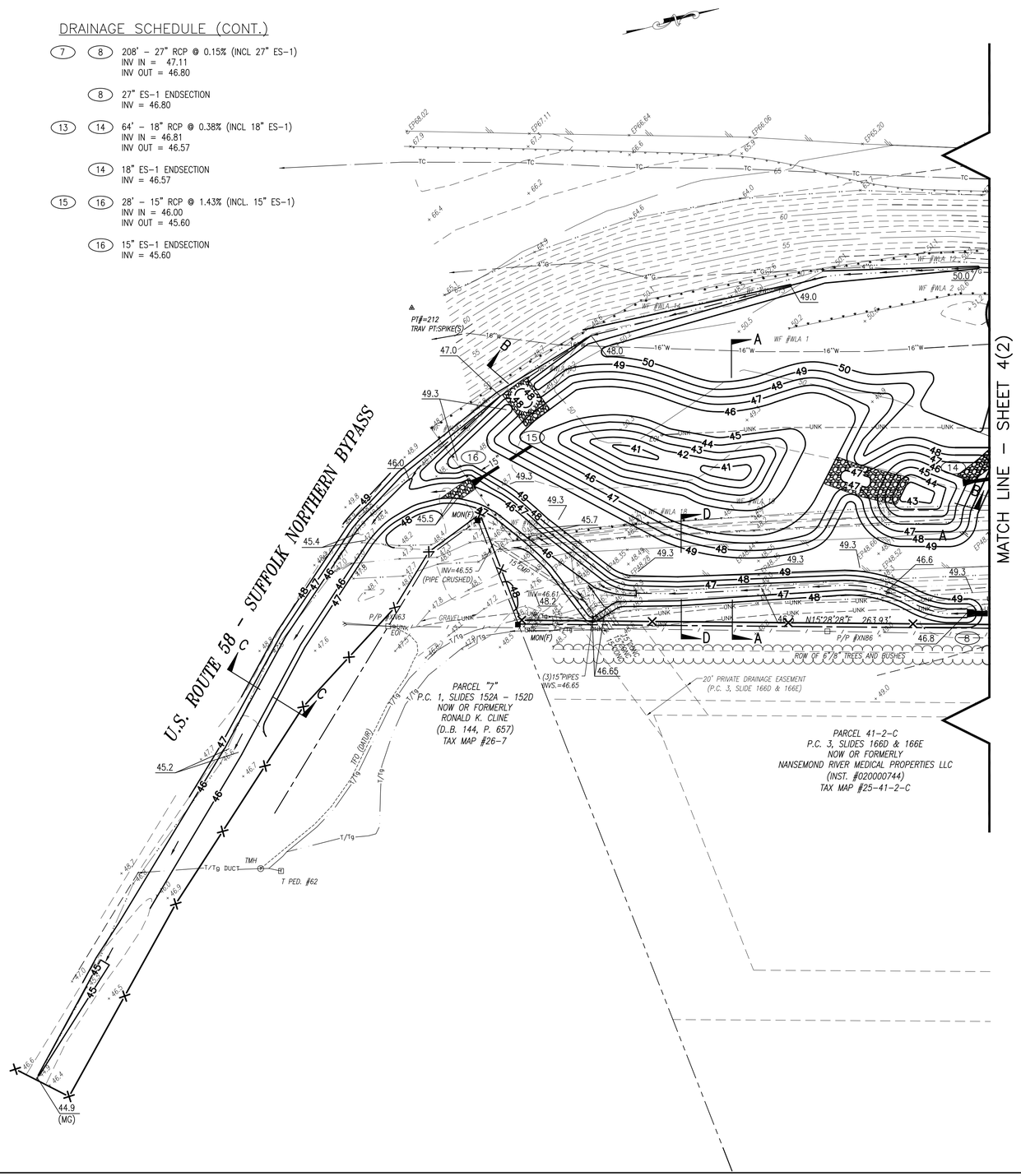
(8) 27" ES-1 ENDSECTION
INV = 46.80

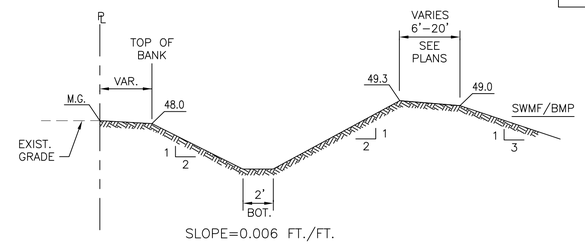
(13) (14) 64' - 18" RCP @ 0.38% (INCL 18" ES-1)
INV IN = 46.81
INV OUT = 46.57

(14) 18" ES-1 ENDSECTION
INV = 46.57

(15) (16) 28' - 15" RCP @ 1.43% (INCL. 15" ES-1)
INV IN = 46.00
INV OUT = 45.60

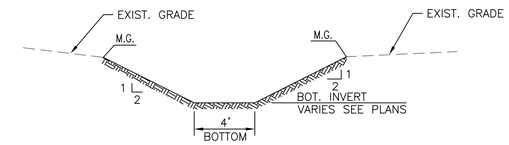
(16) 15" ES-1 ENDSECTION
INV = 45.60





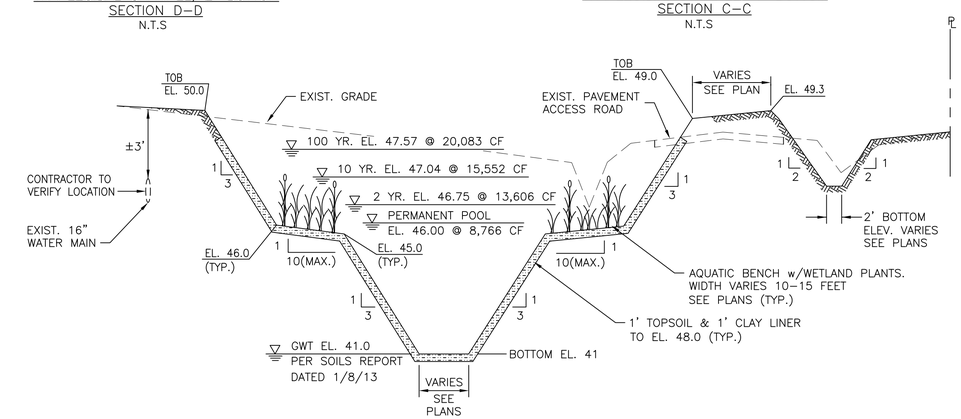
SLOPE=0.006 FT./FT.

TRAPEZOIDAL CHANNEL, 2' BOTTOM
SECTION D-D
N.T.S

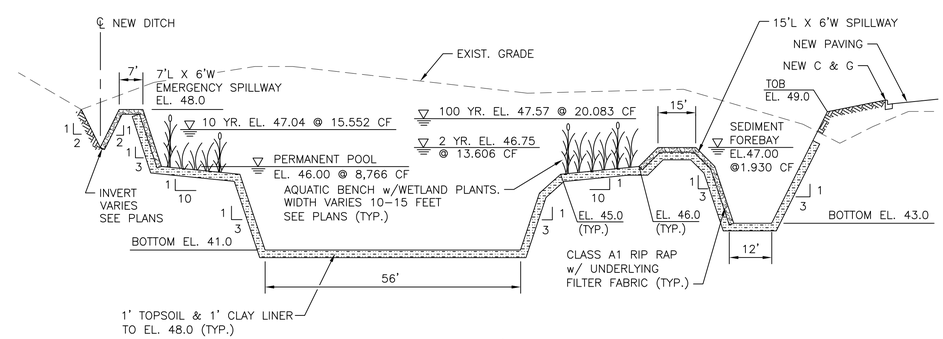


SLOPE=0.002 FT./FT.

TRAPEZOIDAL CHANNEL, 4' BOTTOM
SECTION C-C
N.T.S



RETENTION BASIN III w/ AQUATIC BENCH
SECTION A-A
N.T.S



RETENTION BASIN III w/ AQUATIC BENCH
SECTION B-B
N.T.S

SITE GRADING

GRAPHIC SCALE

25 0 25 50 100

(IN FEET)
1 inch = 25 ft.

CITY OF SUFFOLK PLAN NO.	PROJECT	SHEET NO.
310-41100-2168 53850.140	U000-133-338	5(2)

$TIME$STAMP$

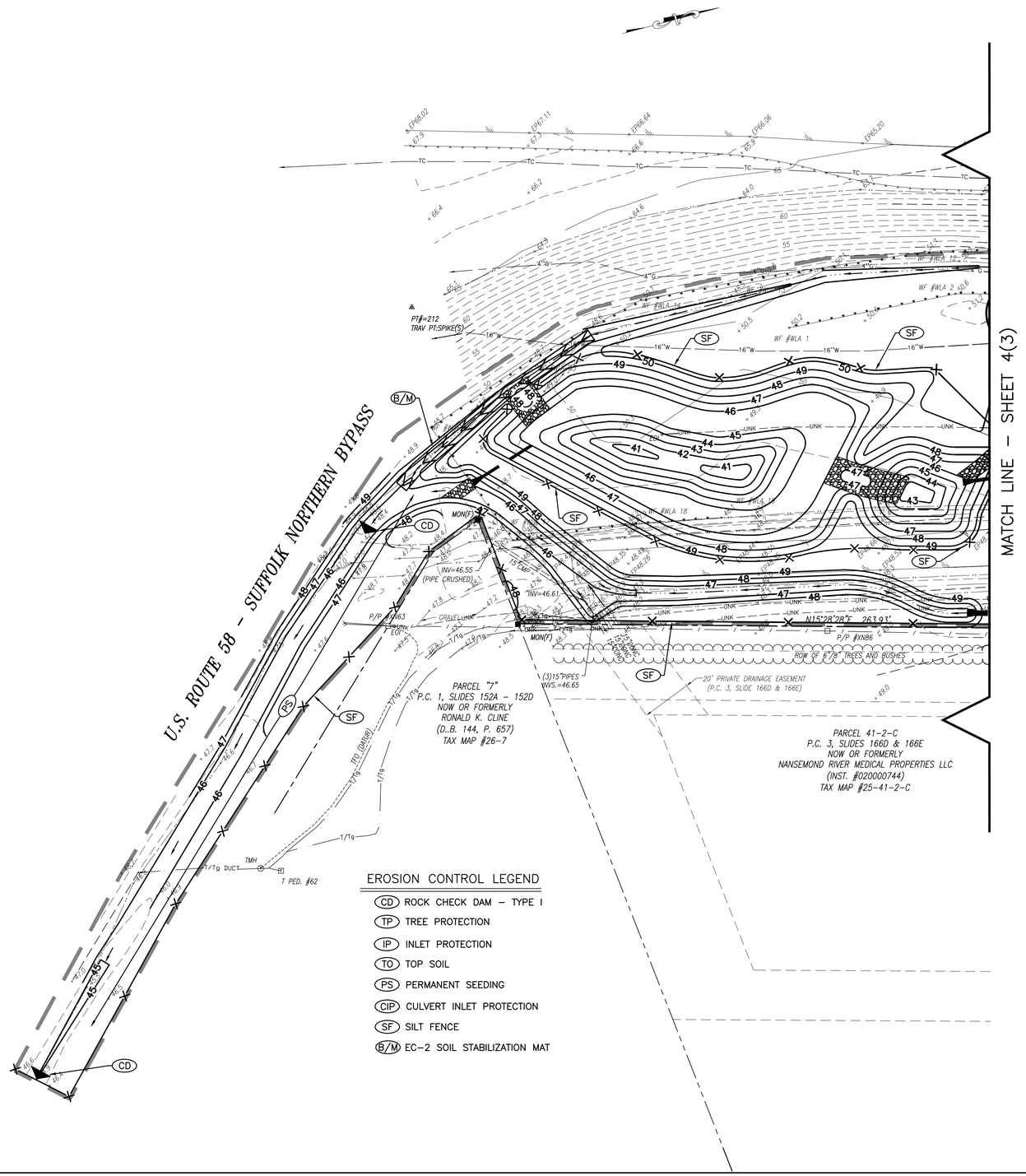
PROJECT MANAGER SANDON RODGERS (757) 514-7683
SURVEYED BY JOHNSON, MIRMIRAN, & THOMPSON (757) 499-1895
DESIGN SUPERVISED BY CITY OF SUFFOLK DEPARTMENT OF PUBLIC WORKS - ENGINEERING (757) 514-7683
DESIGNED BY JOHNSON, MIRMIRAN, & THOMPSON (757) 499-1895

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.		U000-133-338, P-101	5(3)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Johnson, Mirmiran & Thompson, Inc.
Virginia Beach, Virginia
CIVIL DESIGN

NOTE: FOR EROSION CONTROL NOTES AND DETAILS SEE SHEETS 1D THRU 1D(2)



EROSION AND SEDIMENT CONTROL PHASE II

GRAPHIC SCALE

25 0 25 50 100

(IN FEET)
1 inch = 25 ft.

CITY OF SUFFOLK PLAN NO.	PROJECT	SHEET NO.
310-41100-2168 53850.140	U000-133-338	5(3)

JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®
272 Bendix Road, Suite 260 Virginia Beach, VA 23452

$TIME$STAMP$

JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®
272 Bendix Road, Suite 260 Virginia Beach, VA 23452

PROJECT MANAGER SANDON RODGERS (757) 514-7683
SURVEYED BY JOHNSON, MIRMIRAN, & THOMPSON (757) 499-1895
DESIGN SUPERVISED BY CITY OF SUFFOLK DEPARTMENT OF PUBLIC WORKS - ENGINEERING (757) 514-7683
DESIGN BY JOHNSON, MIRMIRAN, & THOMPSON (757) 499-1395

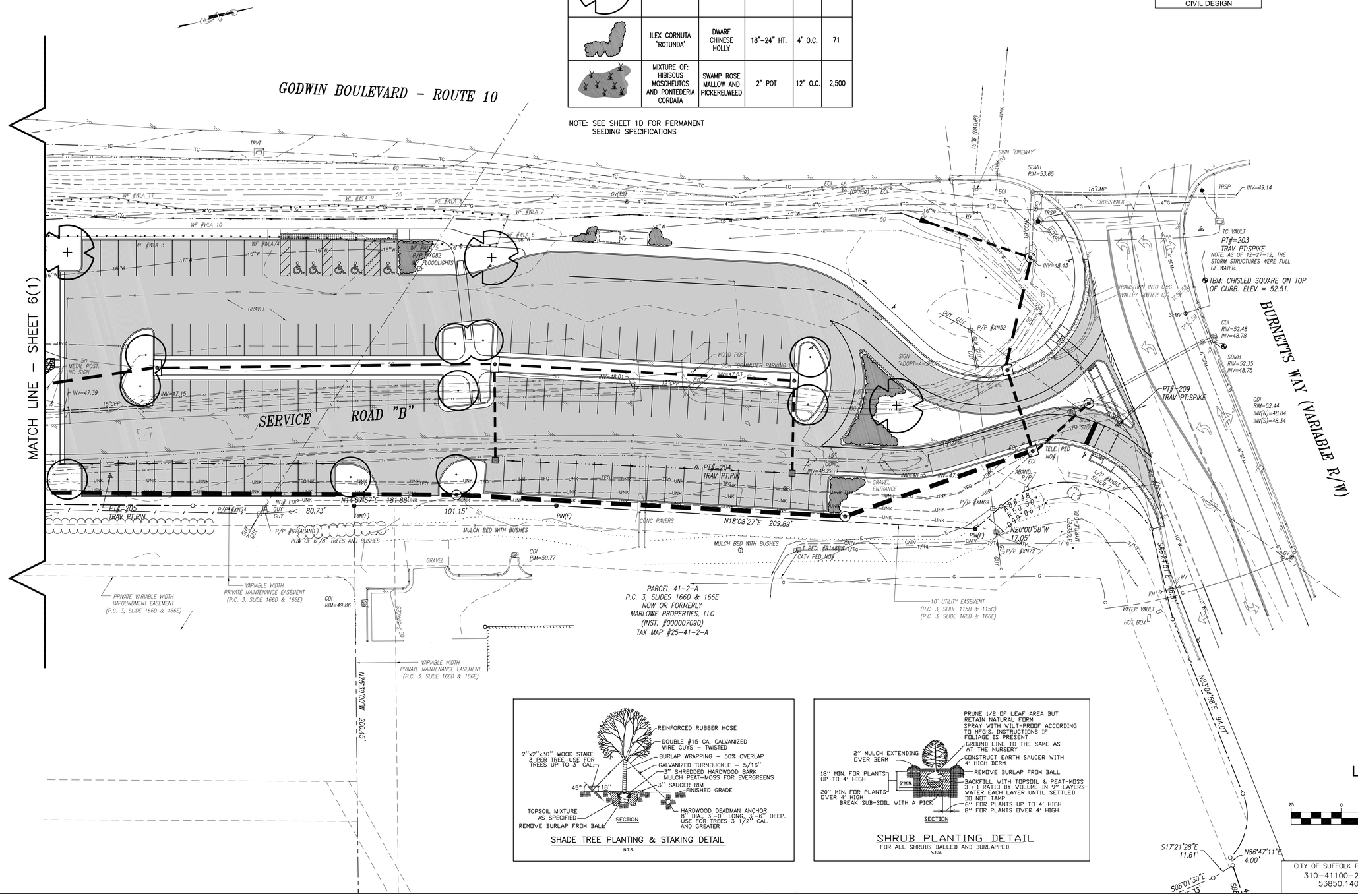
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.		U000-133-338, P-101	6

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Johnson, Mirmiran & Thompson, Inc.
Virginia Beach, Virginia
CIVIL DESIGN

LANDSCAPE SCHEDULE					
SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	QUANTITY
	LAGERSTROEMIA INDICA	CRAPE MYRTLE	1"- 1 1/2" CALIPER	-	10
	ZELKOVA SERRATA	JAPANESE ZELKOVA	1 1/2"-2" CALIPER	-	3
	ILEX CORNUTA 'ROTUNDA'	DWARF CHINESE HOLLY	18"-24" HT.	4' O.C.	71
	MIXTURE OF: HIBISCUS MOSCHEUTOS AND PONTEDERIA CORDATA	SWAMP ROSE MALLOW AND PICKERELWEED	2" POT	12" O.C.	2,500

NOTE: SEE SHEET 1D FOR PERMANENT SEEDING SPECIFICATIONS



SHADE TREE PLANTING & STAKING DETAIL
N.T.S.

SHRUB PLANTING DETAIL
FOR ALL SHRUBS BALLED AND BURLAPPED
N.T.S.

LANDSCAPE PLAN
GRAPHIC SCALE
25 0 25 50 100
(IN FEET)
1 inch = 25 ft.

CITY OF SUFFOLK PLAN NO.	PROJECT	SHEET NO.
310-41100-2168 53850.140	U000-133-338	6

$TIME$STAMP$

PROJECT MANAGER SANDON RODGERS (757) 514-7683
SURVEYED BY JOHNSON, MIRMIRAN, & THOMPSON (757) 499-1895
DESIGN SUPERVISED BY CITY OF SUFFOLK DEPARTMENT OF PUBLIC WORKS - ENGINEERING (757) 514-7683
DESIGNED BY JOHNSON, MIRMIRAN, & THOMPSON (757) 499-1895

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.		U000-133-338, P-101	6(1)

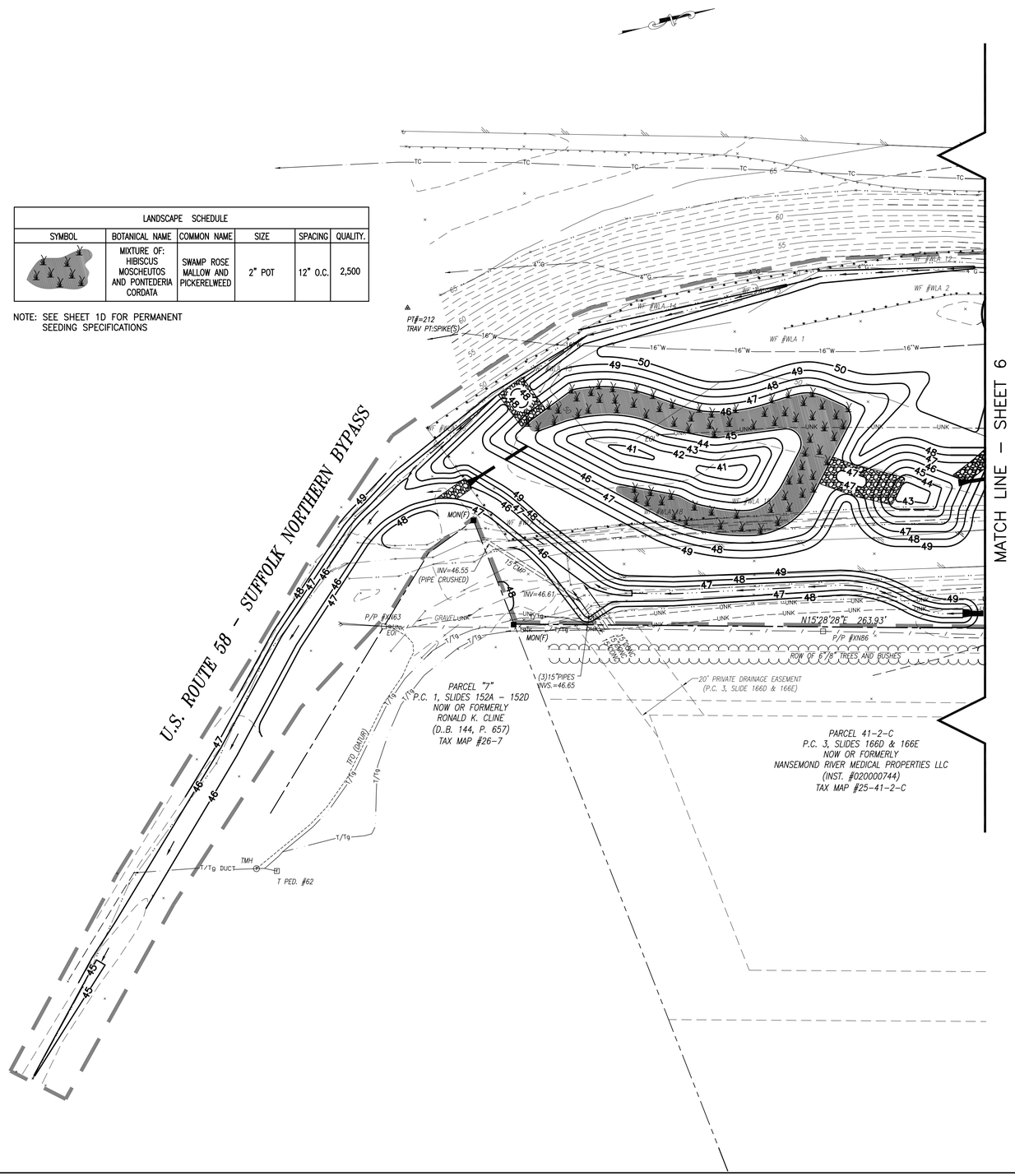
DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Johnson, Mirmiran & Thompson, Inc.
Virginia Beach, Virginia
CIVIL DESIGN

JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®
272 Bendix Road, Suite 260 Virginia Beach, VA 23452

LANDSCAPE SCHEDULE					
SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	QUALITY.
	MIXTURE OF: HIBISCUS MOSCHEUTOS AND PONTEDERIA CORDATA	SWAMP ROSE MALLOW AND PICKERELWEED	2" POT	12" O.C.	2,500

NOTE: SEE SHEET 1D FOR PERMANENT SEEDING SPECIFICATIONS



LANDSCAPE PLAN

GRAPHIC SCALE

25 0 25 50 100

(IN FEET)
1 inch = 25 ft.

CITY OF SUFFOLK PLAN NO.	PROJECT	SHEET NO.
310-41100-2168 53850.140	U000-133-338	6(1)

$TIME$STAMP$

PROJECT MANAGER Sandon Rodgers (757) 514-7683 (City of Suffolk)
SURVEYED BY Johnson, Mirmiran & Thompson (757) 499-1895
DESIGN SUPERVISED BY CITY OF SUFFOLK Department of Public Works - Engineering (757) 514-7683
DESIGN BY Johnson, Mirmiran & Thompson (757) 499-1895

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.		U000-133-338, P-101	7

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Johnson, Mirmiran and Thompson
Herndon, Virginia
TRAFFIC ENGINEER

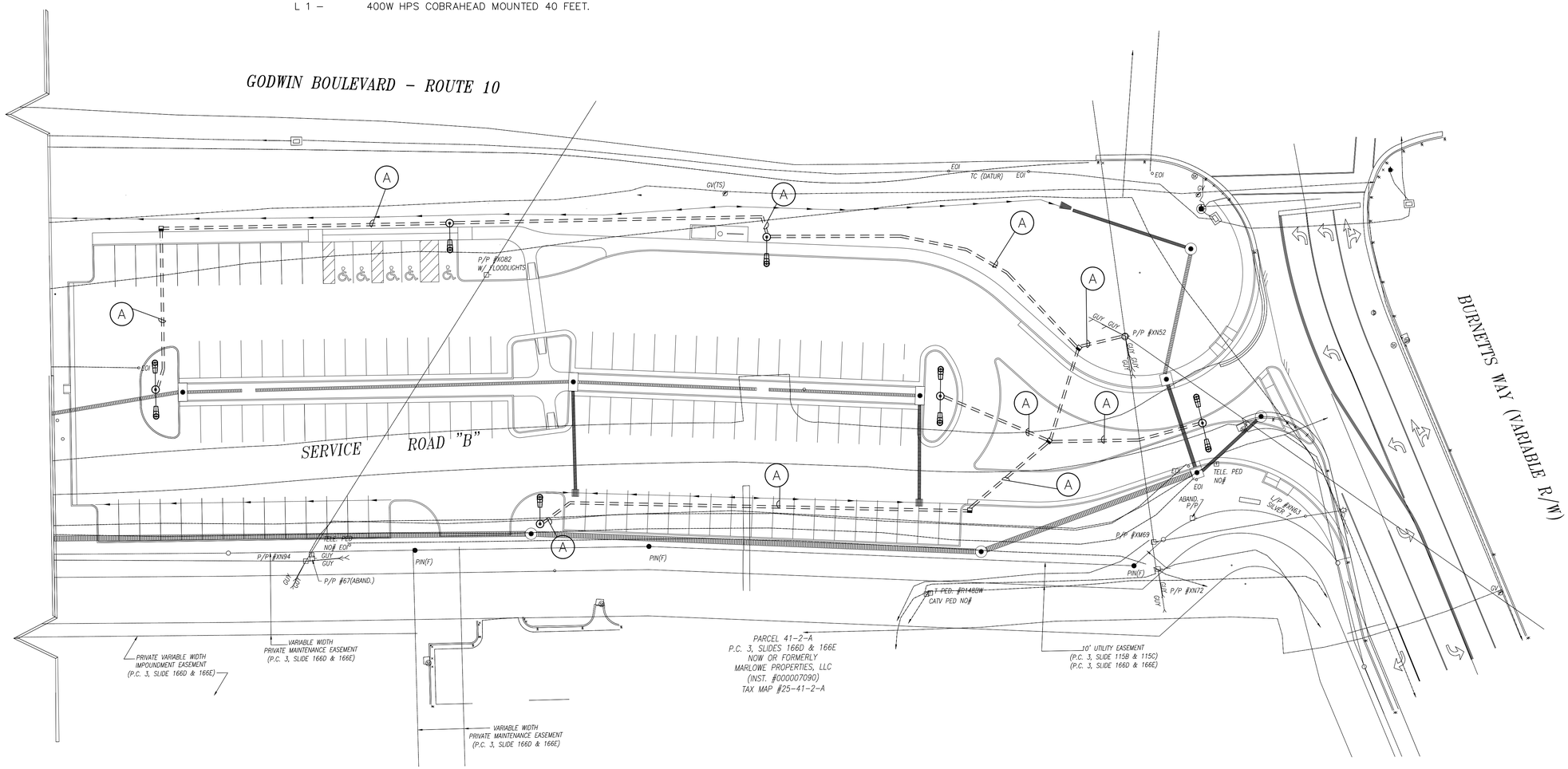
(A)
2" - EMPTY CONDUIT, TRENCHED

LIGHTING LEGEND

PROPOSED SYMBOL	DESCRIPTION
	LIGHT POLE
	DUAL ARM LIGHT POLE
	SCHEDULE 40 2" PVC CONDUIT
	JUNCTION BOX (STD. JB-S1 UNLESS OTHERWISE INDICATED)
	ELECTRICAL SERVICE POINT

LUMINAIRE TYPE

TYPE	DESCRIPTION
L 1 -	400W HPS COBRAHEAD MOUNTED 40 FEET.



Luminaire Schedule												
Symbol	Qty	Label	Arrangement	Total Lamp Lumens	LLF	Description	Arm	[MANUFAC]	Long. Class	Cutoff Class	BUG Rating
	3	2x12'arm Enclosed Flat Lens	BACK-BACK	50000	0.650	OVF40SXX3D 400HP	12	COOPER LIGHTING - STREETWORKS	Medium	Full Cutoff	B4-U0-G4
	3	1x12'arm Enclosed Flat Lens	SINGLE	50000	0.650	OVF40SXX3D 400HP	12	COOPER LIGHTING - STREETWORKS	Medium	Full Cutoff	B4-U0-G4

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Parking Lot	Illuminance	Fc	2.23	5.1	0.6	3.72	8.50
Vehicle Entrance	Illuminance	Fc	3.58	4.8	1.0	3.58	4.80
Vehicle Exit	Illuminance	Fc	3.20	4.8	1.1	2.91	4.36
Vertical	Illuminance	Fc	1.02	2.43	0.32	3.19	7.59

LIGHTING PLAN

CITY OF SUFFOLK PLAN NO.	PROJECT	SHEET NO.
310-41100-2168 53850.140	U000-133-338	7