PROJECT MANAGER SHARON WHITE (VDOT)
SURVEYED BY GUFFEY WARNER & ASSOC. AND NXL, INC.
DESIGN SUPERVISED BY DONALD DeBERRY, P.E. (CITY OF LYNCHBURG) 434-455-3935
DESIGNED BY RICK J. DELONG (MCCORMICK TAYLOR, INC.)

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THIS PROJECT WAS DEVELOPED UTILIZING THE DEPARTMENT'S ENGINEERING DESIGN PACKAGE (GEOPAK).
GEOPAK Computer Identification No. 86544

COMMONWEALTH OF VIRGINIA

PLAN AND PROFILE OF PROPOSED ROADWAY IMPROVEMENTS

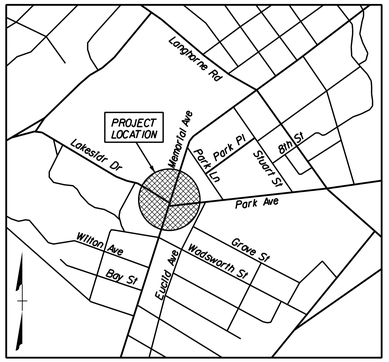
CITY OF LYNCHBURG
MEMORIAL AVENUE / LAKESIDE DRIVE / PARK AVENUE
INTERSECTION IMPROVEMENTS

STATE	FEDERAL AID PROJECT	STATE ROUTE	STATE PROJECT	SHEET NO.
VA.		163	(NFO) 0163-118-192 SEE TABULATIONS BELOW FOR SECTION NUMBERS	1

FHWA-534-3E021

City Project Number 11011-RWS

FUNCTIONAL CLASSIFICATION AND TRAFFIC DATA	
URBAN PRINCIPAL ARTERIAL (GS-5)-ROLLING-30MPH DESIGN SPEED	
VA 163 (Memorial Avenue)	Fr: 0.02 Mi. S. Int. Memorial Ave./Lakeside Dr./Park Ave. To: 0.01 Mi. N. Int. Memorial Ave./Lakeside Dr./Park Ave.
ADT (2010)	13,000
ADT (2034)	18,600
DHV	1,700
D (%)	58%
T (%)	1%
V (MPH)	30



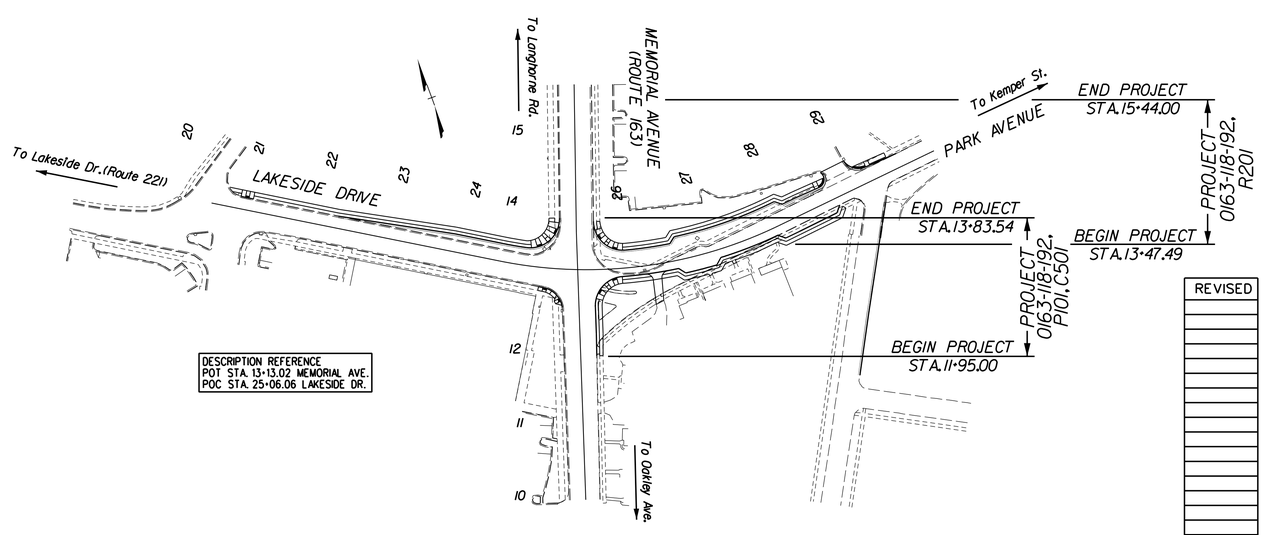
LOCATION MAP
NOT TO SCALE

THE COMPLETE ELECTRONIC .PDF VERSION OF THE PLAN ASSEMBLY AS AWARDED, INCLUDING ALL SUBSEQUENT REVISIONS, WILL BE THE OFFICIAL CONSTRUCTION PLANS.

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, THE CITY OF LYNCHBURG MANUAL OF SPECIFICATIONS, AND AS AMENDED BY CONTRACT PROVISIONS AND THE COMPLETE ELECTRONIC PDF VERSION OF THE PLAN ASSEMBLY.

ALL CURVES ARE TO BE SUPERELEVATED, TRANSITIONED AND WIDENED IN ACCORDANCE WITH STANDARD TC-5.04ULS, EXCEPT WHERE OTHERWISE NOTED.



DESCRIPTION REFERENCE
POT STA. 13+13.02 MEMORIAL AVE.
POC STA. 25+06.06 LAKESIDE DR.

POPULATION 75,568 (2010 CENSUS)

CONVENTIONAL SIGNS

STATE LINE
COUNTY LINE
CITY,TOWN OR VILLAGE
RIGHT OF WAY LINE
FENCE LINE
UNFENCED PROPERTY LINE
FENCED PROPERTY LINE
WATER LINE
SANITARY SEWER LINE
GAS LINE
ELECTRIC UNDERGROUND CABLE
TRAVELED WAY
GUARD RAIL
RETAINING WALL
RAILROADS
BASE OR SURVEY LINE
LEVEE OR EMBANKMENT
BRIDGES
CULVERTS
DROP INLET
POWER POLES
TELEPHONE OR TELEGRAPH POLES
TELEPHONE OR TELEGRAPH LINES
HEDGE
TREES
HEAVY WOODS
GROUND ELEVATION
GRADE ELEVATION

STATE PROJECT NO.	SECTION	FEDERAL AID PROJECT NO.	TYPE CODE	PPMS NO.	LENGTH INCLUDING BRIDGE(S) FEET	LENGTH INCLUDING BRIDGE(S) MILES	LENGTH EXCLUDING BRIDGE(S) FEET	LENGTH EXCLUDING BRIDGE(S) MILES	TYPE PROJECT	DESCRIPTION
0163-118-192	P101	HSIP-5118(191)	PENG	86544	188.54	0.04	188.54	0.04	Prelim. Engr.	From: 0.02 Mi. S. Int. Memorial Ave./ Lakeside Dr./Park Ave. To: 0.01 Mi. N. Int. Memorial Ave./ Lakeside Dr./Park Ave.
	C501	HSIP-5118(212)	I000	86544	188.54	0.04	188.54	0.04	Construction	
	R201	HSIP-5118(228)	ROWA	86544	196.51	0.04	196.51	0.04	Right-of-Way	From: 0.01 Mi. N. Int. Memorial Ave./ Lakeside Dr./Park Ave. To: 0.04 Mi. N. Int. Memorial Ave./ Lakeside Dr./Park Ave.

NOTE: PROJECT LENGTH BASED ON LAKESIDE DRIVE/PARK AVE CONSTRUCTION BASELINE

COMMONWEALTH OF VIRGINIA
RICK JAMES DeLONG
Lic. No. 031642
02-06-15
PROFESSIONAL ENGINEER

McCormick Taylor, Inc.
Verona, Virginia
ROADWAY ENGINEER

TIER 1 PROJECT

LOCALLY ADMINISTERED PROJECTS	
CITY OF LYNCHBURG	
J. LEE NEWLAND, P.E.	
RECOMMENDED FOR APPROVAL FOR RIGHT OF WAY ACQUISITION	
	CITY ENGINEER
DATE	TITLE OF POSITION
J. LEE NEWLAND, P.E.	
RECOMMENDED FOR APPROVAL FOR CONSTRUCTION	
	CITY ENGINEER
DATE	TITLE OF POSITION
SCOTT PARKINS, P.E.	
RECOMMENDED FOR APPROVAL FOR CONSTRUCTION	
	CITY UTILITIES ENGINEER
DATE	TITLE OF POSITION
J.P. MORRIS, P.E.	
RECOMMENDED FOR APPROVAL FOR CONSTRUCTION	
	ENGINEERING PROJECT MANAGER
DATE	TITLE OF POSITION

REVISED

RECOMMENDED FOR APPROVAL FOR CONSTRUCTION	
DATE	DISTRICT PLANNING AND INVESTMENT MANAGER
DATE	DISTRICT PROJECT DEVELOPMENT ENGINEER
APPROVED FOR CONSTRUCTION	
DATE	DISTRICT ADMINISTRATOR

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PROJECT MANAGER SHARON WHITE (VDOT)
SURVEYED BY GUFFEY WARNER & ASSOC. AND NXL, INC.
DESIGN SUPERVISED BY DONALD DeBERRY, P.E. (CITY OF LYNCHBURG) 434-455-3935
DESIGNED BY RICK J. DELONG (MCCORMICK TAYLOR, INC.)

ALIGNMENT DATA

LAKESIDE DRIVE / PARK AVENUE CONSTRUCTION BASELINE

Point D200 N 3,671,693.9754 E 11,288,775.0736 Sta. 20+00.00

Course from D200 to D204 S 58° 36' 48.51" E Dist 20.0000

Point D204 N 3,671,683.5592 E 11,288,792.1470 Sta. 20+20.00

Course from D204 to PC C200 S 58° 36' 48.51" E Dist 379.0135

Curve Data

Curve C200
P.I. Station 26+00.81 N 3,671,381.0678 E 11,289,287.9696
Delta = 37° 10' 42.75" (LT)
Degree = 9° 32' 57.47"
Tangent = 201.7972
Length = 389.3328
Radius = 600.0000
External = 33.0262
Long Chord = 382.5382
Mid. Ord. = 31.3031
P.C. Station 23+99.01 N 3,671,486.1656 E 11,289,115.7007
P.T. Station 27+88.35 N 3,671,401.4327 E 11,289,488.7366
C.C. N 3,671,998.3696 E 11,289,428.1860
Back = S 58° 36' 48.51" E
Ahead = N 84° 12' 28.74" E
Chord Bear = S 77° 12' 09.88" E

Course from PT C200 to D203 N 84° 12' 28.74" E Dist 186.6500

Point D203 N 3,671,420.2694 E 11,289,674.4375 Sta. 29+75.00

Course from D203 to D202 N 84° 12' 28.74" E Dist 47.5000

Point D202 N 3,671,425.0631 E 11,289,721.6962 Sta. 30+22.50

MEMORIAL AVENUE CONSTRUCTION BASELINE

Point D100 N 3,671,141.0973 E 11,289,114.9570 Sta. 10+00.00

Course from D100 to D103 N 17° 58' 30.79" E Dist 195.0000

Point D103 N 3,671,326.5794 E 11,289,175.1351 Sta. 11+95.00

Course from D103 to D101 N 17° 58' 30.79" E Dist 168.1700

Point D101 N 3,671,486.5432 E 11,289,227.0341 Sta. 13+63.17

Course from D101 to D104 N 19° 08' 58.67" E Dist 20.3700

Point D104 N 3,671,505.7844 E 11,289,233.7156 Sta. 13+83.54

Course from D104 to D102 N 19° 08' 58.67" E Dist 181.3600

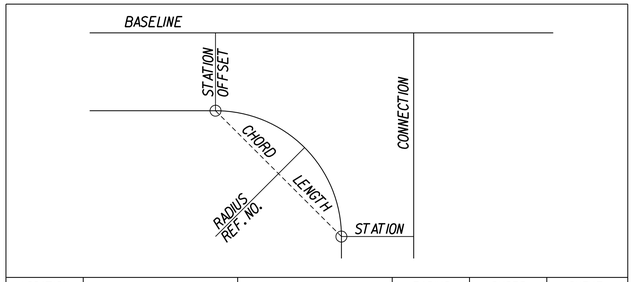
Point D102 N 3,671,677.1114 E 11,289,293.2091 Sta. 15+64.90

SURVEY DATA

HORIZONTAL DATUM: CITY OF LYNCHBURG
VERTICAL DATUM: CITY OF LYNCHBURG

CONTROL POINT #1	N 3671381.78	E 11289495.66	ELEV. 784.53'	NAIL SET	
CONTROL POINT #2	N 3671205.86	E 11289093.76	ELEV. 784.41'	NAIL SET	
CONTROL POINT #961	N 3671842.87	E 11289384.77	ELEV. 793.05'	NAIL FOUND	PROPERTY CORNER
CONTROL POINT #2266	N 3671426.48	E 11289146.99	ELEV. 790.28'	NAIL FOUND	PROPERTY CORNER
CONTROL POINT #4	N 3671683.62	E 11288829.56	ELEV. 788.53'	NAIL SET	
CONTROL POINT #5	N 3671738.68	E 11288644.22	ELEV. 786.68'	NAIL SET	

RADIAL OFFSET DATA



LOCATION (REF. NO.)	BASELINE		CONNECTION		RADIUS LENGTH	CHORD LENGTH	CURVE LENGTH
SHEET - ITEM	STATION	OFFSET	STATION	OFFSET	FEET	FEET	FEET
5-1	24+32.48	24.00' LT	13+83.54	22.39' LT	40.00'	60.78'	69.03'
5-2	25+73.21	24.00' LT	13+78.20	23.22' RT	40.00'	58.67'	65.86'
5-3	24+62.17	26.87' RT	12+61.99	22.39' LT	32.00'	37.69'	40.30'
5-4	25+65.84	11.00' RT	12+61.72	22.00' RT	40.00'	55.31'	61.07'
5-5	28+60.10	22.77' LT	28+70.95	40.69' LT	12.00'	20.95'	25.47'
5-6	29+29.43	20.34' LT	29+05.67	41.06' LT	25.00'	31.52'	34.11'

UTILITY DATA

UTILITY OWNERS

WATER & SEWER
City of Lynchburg
Water Resources Dept.
Attn: Harry Doss
525 Taylor Street
Lynchburg, VA 24501
(434) 455-4271

TRAFFIC SIGNAL
City of Lynchburg
Attn: Don DeBerry, P.E.
900 Church Street
Lynchburg, VA 24504
(434) 455-3935
Donald.DeBerry@lynchburgva.gov

COMMUNICATIONS
Verizon Virginia, Inc.
Attn: Leslie Schmitt
533 Leesville Road
Lynchburg, VA 24502
leslie.h.schmitt@verizon.com
(434) 237-9522

COMMUNICATIONS
Comcast
Attn: Brian Bemis
Brian_Bemis@cable.comcast.com
(434) 996-8061

ELECTRICITY
American Electric Power
Attn: Tom McConaghy
4001 Mayflower Drive
Lynchburg, VA 24501
tamcconaghy@aep.com
(434) 522-4288

GAS
Columbia Gas of Virginia, Inc.
Attn: Steve Bishop
1500 Rutherford Street
Lynchburg, VA 24501
Steven.Bishop@nisource.com
(434) 238-1302

COMMUNICATIONS
Lumos Networks (a.k.a. nTelos)
Attn: Tim Agee
828 Main Street, Suite 902
Lynchburg, VA 24504
(434) 420-5334
ageet@lumosnet.com

UTILITY LEGEND

WL	Water Line
	Water Valve
	Water Meter
	Fire Hydrant
	Gravity Sewer
S	Sanitary Manhole
GAS	Gas Line
	Gas Valve
	Guy Wire
	Power Pole
	Light Pole
OHE	Overhead Electrical Line
UGE	Underground Electrical Line
OHC	Overhead Cable Line
OHT	Overhead Telephone Line
UGT	Underground Telephone Line

NOTE: Underground utilities were marked by MISS UTILITY and surveyed by Guffey Warner & Associates. MISS UTILITY Ticket Number B028001522.

RIGHT OF WAY DATA

PARCEL NO.	LANDOWNER	SHEET NO.	AREA						PROFFERS
			TOTAL	FEE TAKING	FEE REMAINDER	EASEMENTS			
						PERM. DRAINAGE	PERM. UTILITY	TEMPORARY CONSTRUCTION	
			ACRES	ACRES	ACRES	SQ. FEET	SQ. FEET	SQ. FEET	YES/NO
001	LYNCHBURG R A LLC	5	2.054	0.172 (7480 SF)	1.882	--	7089	6910	NO

McCORMICK TAYLOR

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NORTH SHORE COMMONS A
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GLEN ALLEN, VA 23060

PREPARED FOR:
CITY OF LYNCHBURG
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

COMMONWEALTH OF VIRGINIA
RICK JAMES DeLONG
Lic. No. 031642
02-06-15
PROFESSIONAL ENGINEER

NO.	REVISIONS	DATE	APPR.

MEMORIAL AVE/LAKESIDE DR/PARK AVE
INTERSECTION IMPROVEMENTS
VDOT PROJECT NO. 0163-118-192
FEDERAL PROJECT NO. HSIP-5118
CITY PROJECT NUMBER. 11011-R WS

NOT TO SCALE

ALIGNMENT, SURVEY, UTILITY, RADIAL OFFSET & RIGHT OF WAY DATA SHEET

DATE: FEB. 06, 2015

PROJECT MANAGER SHARON WHITE (VDOT)
SURVEYED BY GUFFEY WARNER & ASSOC. AND NXL, INC.
DESIGN SUPERVISED BY DONALD DeBERRY, P.E. (CITY OF LYNCHBURG) 434-455-3935
DESIGNED BY RICK J. DELONG (MCCORMICK TAYLOR, INC.)

MAINTENANCE OF TRAFFIC & SEQUENCE OF CONSTRUCTION GENERAL NOTES

1. This project is located at the intersection of Memorial Avenue, Lakeside Drive, and Park Avenue in the City of Lynchburg. This area experiences relatively high traffic volumes consisting of primarily local traffic, buses, and trucks. Pedestrian traffic is also present.

2. This is a Type A transportation management project., Project Management Category II. All TMP requirements of VDOT IIM-LD-241.4 shall be followed.

3. The work zone consists of the following: a) along Lakeside Drive approximately 500' west of the Memorial Ave./Lakeside Dr./Park Ave. intersection; b) along Park Avenue approximately 500' east of the Memorial Ave./Lakeside Dr./Park Ave. intersection; and c) along Memorial Avenue approx. 100' south and 70' north of the Memorial Ave./Lakeside Dr./Park Ave. intersection.

4. Memorial Avenue, Lakeside Drive, and Park Avenue each currently carry one through lane of traffic in each direction with turn lanes. All existing lanes of traffic will be impacted by construction.

5. Work hours are from 7:00AM to 6:00PM Monday through Friday.

6. The Contractor may use the City of Lynchburg property at the corner of Park Ave & Euclid Ave shown on the plans for a staging area if needed (i.e. storage of construction equipment and materials). The contractor is responsible for restoring the site to its original condition at the conclusion of the project.

7. All work on this project shall conform to the 2009 Manual on Uniform Traffic Control Devices (MUTCD), the 2011 Virginia Supplement to the MUTCD, and the 2011 VDOT Work Area Protection Manual (WAPM), and all subsequent revisions.

8. The Memorial Ave./Lakeside Dr./Park Ave. traffic signal shall be maintained operational at all times to the extent possible. The Contractor shall notify the Engineer at least 72 hours in advance of shutting down the traffic signal. Any necessary flagging at the Memorial Ave./Lakeside Dr./Park Ave. intersection shall be done by law enforcement personnel per the WAPM. When the temporary signal is in operation, the contractor is responsible for all aspects of the signal's operation, including maintaining the signal and promptly sddressing any malfunctions.

9. The contractor shall plan and prosecute the work in accordance with the following sequence of construction (SOC) and maintenance of traffic plan (MOT), unless otherwise approved by the Engineer.

10. It is not the intent of the SOC plan to enumerate every detail which must be considered in the construction of each stage, but only to show the general handling of traffic.

11. Any contract items not specifically noted in the SOC may be constructed at the contractor's option, as approved by the Engineer.

12. At no time shall the contractor be permitted to work on both sides of traffic concurrently.

13. All driveways shall have access during all phases of construction.

14. All areas excavated below the existing pavement surface and within the clear zone, at the conclusion of each work day, shall be backfilled to form an approximate 6:1 wedge against the existing pavement surface for the safety and protection of vehicular traffic. All cost for placing, 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.

15. Traffic shall not be detained on Memorial Avenue, Lakeside Drive, or Park Avenue for longer than 5 minutes at any time, unless directed by the Engineer.

16. Lanes may be closed as follows:
All Routes: Single Lanes 9:00 AM to 3:00 PM

17. Contractor shall contact the City of Lynchburg two (2) weeks before lanes are to be closed.

18. Two-Way, One-Lane traffic will be permitted to facilitate specific isolated construction activities that require a lane closure as directed by the Engineer.

19. Cones may be used in areas where personnel will be present to ensure their proper alignment. When personnel are not present Group II Drums shall be required.

20. No night work will be allowed, without prior approval of the Engineer.

21. This traffic control plan shows the major components of traffic control devices to be implemented during construction. The daily control of traffic, including the provision, placement, maintenance, and removal of traffic control devices shall be the contractor's responsibility. The traffic control devices required are as shown on the plan and specification for such as provided in the Virginia WAPM, 2011.

22. Traffic control devices shall be in place prior to the start of construction.

23. Temporary construction signage shall not obstruct existing permanent traffic control devices.

24. Equipment and vehicles parked on the construction site shall not impede traffic flow or obstruct sight distance.

25. The contractor shall provide additional traffic control devices required by actual field conditions or to accomodate his equipment, in accordance with the applicable provisions of the WAPM.

26. The contractor is reminded that the approval of these plans is not intended to relieve him of the responsibility for the protection of the public and the construction personnel. The standards prescribed herein are minimum and additional protection may be needed if unanticipated conditions are encountered during the term of the project. Constantly review this plan for adequacy and recommend changes for the City's approval when inadequacies are discovered.

27. The contractor may modify the maintenance of traffic plans in response to site conditions. All modifications must be submitted to the engineer for review and approval.

28. Existing signs to remain in place, unless otherwise noted on the plans.

MAINTENANCE OF TRAFFIC NOTES

1. A preconstruction meeting will be held prior to the start of the project and will be attended by the engineer, the contractor, and the city inspector.

2. The contractor shall be responsible for daily traffic control such as lane closures, flaggers, driveway entrances, etc., to properly maintain traffic throughout the project.

3. All required construction signing and sign supports, temporary land stabilization, temporary pavement markings, pavement marking eradication, channelizing devices, and other temporary traffic control devices shall be included in the contractor's bid price for maintenance of traffic.

4. Group 2 channelizing devices shall be used at all drop-offs greater than or equal to six inches, but less than two feet. Drop-offs shall be backfilled until a 6:1 wedge is obtained. The cost of approved material for backfilling, placing, removal and disposal when no longer required is included in the cost of maintenance of traffic.

5. The contractor shall provide necessary protection for existing features and shall be responsible for any damage to existing curb/gutter, sidewalk, shoulder, adjacent structures, and public facilities.

6. Cones with a minimum height of 36" shall be used at all transitions. Cones used during nightime hours should have approved reflective sleeves on them.

7. All existing signs shall be maintained at all times during construction.

8. The contractor shall maintain access to all driveway entrances at all times during construction.

9. Temporary closures affectiong ingress/egress to adjacent properties shall be coordinated with affected parties.

10. Pedestrian detours shall be maintained at all times during construction according to Virginia Work Area Protection Manual and MUTCD guidelines.

11. Clear zone shall be maintained free of parked equipment, vehicles, and stored material at all times.

McCORMICK TAYLOR

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PREPARED FOR:
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DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

COMMONWEALTH OF VIRGINIA
ANDREW JOHN PARKER
Lic. No. 048506
02/06/15
PROFESSIONAL ENGINEER

NO.	REVISIONS	DATE	APPR.

MEMORIAL AVE/LAKESIDE DR/PARK AVE INTERSECTION IMPROVEMENTS
VDOT PROJECT NO. 0163-118-192
FEDERAL PROJECT NO. HSIP-5118
CITY PROJECT NUMBER. 11011-R WS

NOT TO SCALE

CONCEPTUAL
TEMPORARY TRAFFIC CONTROL
GENERAL NOTES

DATE: FEB. 06, 2015

SHEET NO. 2A(1) OF 14

PROJECT MANAGER SHARON WHITE (VDOT)
SURVEYED BY GUFFEY WARNER & ASSOC. AND NXL, INC.
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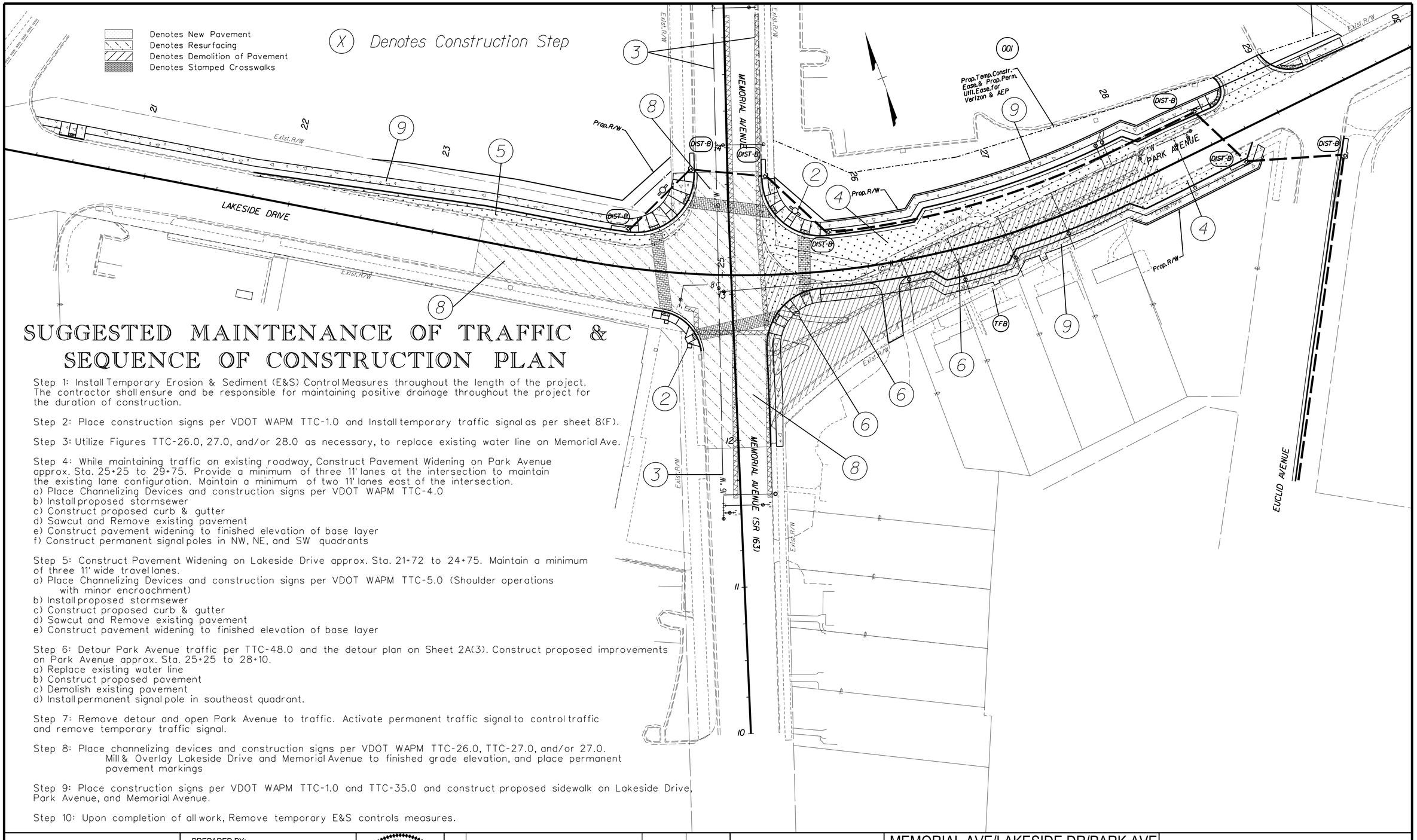

SUGGESTED MAINTENANCE OF TRAFFIC & SEQUENCE OF CONSTRUCTION PLAN

Step 1: Install Temporary Erosion & Sediment (E&S) Control Measures throughout the length of the project. The contractor shall ensure and be responsible for maintaining positive drainage throughout the project for the duration of construction.

Step 2: Place construction signs per VDOT WAPM TTC-1.0 and Install temporary traffic signal as per sheet 8(F).

Step 3: Utilize Figures TTC-26.0, 27.0, and/or 28.0 as necessary, to replace existing water line on Memorial Ave.

Step 4: While maintaining traffic on existing roadway, Construct Pavement Widening on Park Avenue approx. Sta. 25+25 to 29+75. Provide a minimum of three 11' lanes at the intersection to maintain the existing lane configuration. Maintain a minimum of two 11' lanes east of the intersection.
a) Place Channelizing Devices and construction signs per VDOT WAPM TTC-4.0
b) Install proposed stormsewer
c) Construct proposed curb & gutter
d) Sawcut and Remove existing pavement
e) Construct pavement widening to finished elevation of base layer
f) Construct permanent signal poles in NW, NE, and SW quadrants

Step 5: Construct Pavement Widening on Lakeside Drive approx. Sta. 21+72 to 24+75. Maintain a minimum of three 11' wide travel lanes.
a) Place Channelizing Devices and construction signs per VDOT WAPM TTC-5.0 (Shoulder operations with minor encroachment)
b) Install proposed stormsewer
c) Construct proposed curb & gutter
d) Sawcut and Remove existing pavement
e) Construct pavement widening to finished elevation of base layer

Step 6: Detour Park Avenue traffic per TTC-48.0 and the detour plan on Sheet 2A(3). Construct proposed improvements on Park Avenue approx. Sta. 25+25 to 28+10.
a) Replace existing water line
b) Construct proposed pavement
c) Demolish existing pavement
d) Install permanent signal pole in southeast quadrant.

Step 7: Remove detour and open Park Avenue to traffic. Activate permanent traffic signal to control traffic and remove temporary traffic signal.

Step 8: Place channelizing devices and construction signs per VDOT WAPM TTC-26.0, TTC-27.0, and/or 27.0. Mill & Overlay Lakeside Drive and Memorial Avenue to finished grade elevation, and place permanent pavement markings

Step 9: Place construction signs per VDOT WAPM TTC-1.0 and TTC-35.0 and construct proposed sidewalk on Lakeside Drive, Park Avenue, and Memorial Avenue.

Step 10: Upon completion of all work, Remove temporary E&S controls measures.

McCORMICK TAYLOR

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DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

COMMONWEALTH OF VIRGINIA
ANDREW JOHN PARKER
Lic. No. 048506
02/06/15
PROFESSIONAL ENGINEER

NO.	REVISIONS	DATE	APPR.

MEMORIAL AVE/LAKESIDE DR/PARK AVE INTERSECTION IMPROVEMENTS
VDOT PROJECT NO. 0163-118-192
FEDERAL PROJECT NO. HSIP-5118
CITY PROJECT NUMBER. 11011-R WS

SCALE 0 30' 60'

CONCEPTUAL TEMPORARY TRAFFIC CONTROL PLAN

DATE: FEB. 06, 2015

SHEET NO. 2A(2) OF 14

PROJECT MANAGER SHARON WHITE (VDOT)
SURVEYED BY GUFFEY WARNER & ASSOC. AND NXL, INC.
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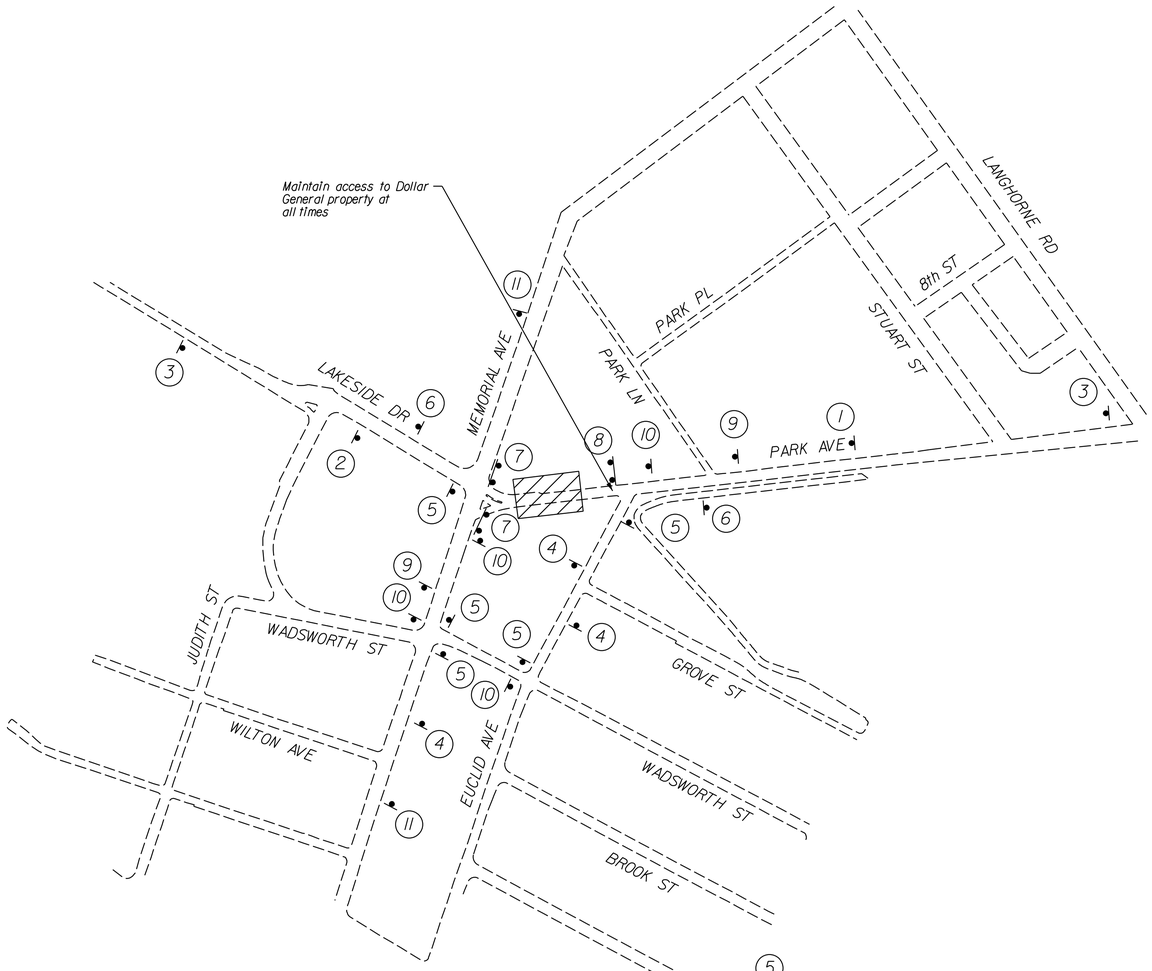
DESIGNED BY RICK J. DELONG (MCCORMICK TAYLOR, INC.)



LEGEND

- WORK ZONE
- (1) SIGN GROUP NUMBER
- TYPE 3 BARRICADE WITH SIGN
- SIGN LOCATION
- (Y) TYPE B WARNING LIGHT

(1) DETOUR AHEAD
W20-2
36" X 36"

(2) ROAD CLOSED 500 FT
W20-3
36" X 36"

(3) ROAD CLOSED AHEAD
W20-3
36" X 36"

(4) Park Ave DETOUR
M4-VPIA
36" x 15"
M4-V3R
36" X 30"

(5) Park Ave DETOUR
M4-VPIA
36" x 15"
M4-9R
36" X 30"
M4-9AR
36" x 30"

(6) END DETOUR
M4-8A
24" X 18"

(7) ROAD CLOSED DETOUR
R11-2
48" X 30"
M4-10R
36" X 30"

(8) ROAD CLOSED DETOUR
R11-2
48" x 30"
M4-10L
36" X 30"

(9) Park Ave DETOUR
M4-VPIA
36" x 15"
M4-V3L
36" X 30"

(10) Park Ave DETOUR
M4-VPIA
36" x 15"
M4-9L
36" X 30"
M4-9AL
36" x 30"

(11) Park Ave DETOUR AHEAD
M4-VPIA
36" X 15"
W20-2
36" X 36"

McCORMICK TAYLOR

PREPARED BY:
McCORMICK TAYLOR
NORTH SHORE COMMONS A
4951 LAKE BROOK DRIVE, SUITE 275
GLEN ALLEN, VA 23060

PREPARED FOR:
CITY OF LYNCHBURG
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

COMMONWEALTH OF VIRGINIA
ANDREW JOHN PARKER
Lic. No. 048506
02/06/15
PROFESSIONAL ENGINEER

NO.	REVISIONS	DATE	APPR.

MEMORIAL AVE/LAKESIDE DR/PARK AVE
INTERSECTION IMPROVEMENTS
VDOT PROJECT NO. 0163-118-192
FEDERAL PROJECT NO. HSIP-5118
CITY PROJECT NUMBER. 11011-R WS

NOT TO SCALE

PARK AVENUE
DETOUR PLAN

DATE: FEB. 06, 2015

SHEET NO. 2A(3) OF 14

PROJECT MANAGER SHARON WHITE (VDOT)
SURVEYED BY GUFFEY WARNER & ASSOC. AND NXL, INC.
DESIGN SUPERVISED BY DONALD DeBERRY, P.E. (CITY OF LYNCHBURG) 434-455-3935
DESIGNED BY RICK J. DELONG (MCCORMICK TAYLOR, INC.)

GENERAL NOTES

1. Work on this project shall conform to the latest editions of the Virginia Department of Transportation (VDOT) Road and Bridge Specifications, the VDOT Road and Bridge Standards, the VDOT Work Area Protection Manual, the City of Lynchburg Manual of Specifications & Standard Details, the Virginia Erosion and Sediment Control Handbook, and the Virginia Erosion and Sediment Control Regulations. In the event of conflict between any of these standards, specifications or plans, the most stringent shall govern.

2. The location of existing utilities as shown is approximate only. The contractor is responsible for locating all public or private utilities that lie in or adjacent to the construction site. The contractor shall be responsible for repairing, at his expense, all existing utilities damaged during construction. Forty-eight (48) hours prior to any excavation call Miss Utility 1 (800) 552-7001.

3. The Contractor shall immediately notify the Engineer of any field conditions that differ from the existing features shown on the plans. Work done by the Contractor after his discovery of such discrepancies shall be done at the Contractor's risk.

4. Design features relating to construction or to regulation and control of traffic may be subject to change as deemed necessary by the City of Lyncburg.

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

6. 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 Earthwork: curb, curb & gutter, entrance gutter, sidewalk, inlets, pipe.

7. The borrow material for this project shall be a minimum CBR 10 or as approved by the Engineer.

8. 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.

9. 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 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 McCormick Taylor Drainage Engineer before installing the culvert or storm sewer outfall pipe.

10. The "H" dimension 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.

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

12. Where open joint pipe is to be used, no joint shall be opened a distance exceeding 25% of the spigot length. Sealing of the pipe joint shall be in accordance with Section 302 of the applicable VDOT Road and Bridge Specifications.

13. A pipe joint length different from that stated on the plans may be used. An adjustment in the percentage of open joint (not to exceed 25% of the spigot length) or amount of bevel shall be made that will obtain the radius stated on the plans. Extra payment for this adjustment will not be allowed. The proposed adjustment shall be approved by the Engineer prior to installation of the pipe line.

14. The proposed riprap may be omitted by the Engineer if the slope designated for placement of riprap is found to be comprised of solid rock or closely consolidated boulders with soundness, size and weight equal to, or exceeding, the specifications for proposed riprap.

15. All existing drainage facilities labeled "To Be Abandoned" shall be left in place, backfilled and plugged in accordance with the VDOT Road and Bridge Standard PP-1. Basis of Payment will be C.Y. of Flowable Backfill.

16. 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.

17. 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.

18. When CG-6 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.

19. That portion of the right of way lying within the Clear Zone or within a minimum of 10 feet from the edge of pavement or surfacing or within the limits of the construction slopes beyond 10 feet, 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.

20. Clearing and grubbing shall be confined to those areas needed for construction. No trees or shrubs in ungraded areas shall be cut without the permission of the Engineer.

21. When no centerline alignment is shown for a proposed entrance, the entrance shall be constructed in the same location as the existing entrance.

22. St'd RM-2 Right of Way Monuments shall be set by the Contractor.

23. 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 on plan Sheet 8 and as directed by the Engineer.

24. The following sources, under contract with the City of Lynchburg, have provided information on this project:

Hydraulic Design - McCormick Taylor
Roadway Design - McCormick Taylor
Utility Design - McCormick Taylor
Utility Designation - MISS UTILITY
Survey - Guffey Warner & Assoc. and NXL, Inc.

If questions or problems arise during construction, please contact the City of Lynchburg. DO NOT CONTACT THE OUTSIDE SOURCES.

25. The temporary erosion and siltation control items shown on the plans are intended to provide a general plan for controlling erosion and siltation within the project limits. The Erosion & Sediment Control (ESC) Plan is based on field conditions at the time of plan development and an assumed sequence of construction for the project. The contractor, in conjunction with the Project Engineer and/or Environmental Monitor, shall adjust the location, quantity and type of erosion and sediment control items required based on the actual field conditions encountered at the time of construction and the actual scheduling and sequencing of the construction activities. Significant changes to the proposed ESC Plan (e.g., those that require emergency analysis) shall be submitted to the City of Lynchburg for review and approval. Any changes to the proposed ESC Plan must be noted on a designated plan set (Record Set) which shall be retained on the project site and made available upon request.

26. The areas beyond the project's construction area are to be protected from siltation in accordance with the Virginia Erosion and Sediment Control Handbook. Perimeter controls such as filter barrier, silt fence, diversion dikes, turbidity curtains, etc. shall be installed prior to any grubbing operations or other earth moving activities.

27. 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.

28. All disturbed areas shall be fertilized and seeded with the applications as follows until a suitable stand of grass is obtained and approved by the Engineer.

Fertilizer (10-10-10) @ 1000 lb/acre or Approved Equivalent
Ground Limestone @ 1 ton/acre
Grass Seed (Ky. 31 Fescue) @ 150 lb/acre
Mulch (Straw or Approved Equivalent) @ 400 lb/acre

If construction takes place between November 1 and April 1, an additional 150 lb/acre of Rye grass is required.

29. The following symbols are used to depict roadway items in the plan assembly:

C - - - Denotes Construction Limits in Cuts
F - - - Denotes Construction Limits in Fills
Denotes New Pavement
Denotes Resurfacing
Denotes Demolition of Pavement
Denotes Stamped Crosswalks

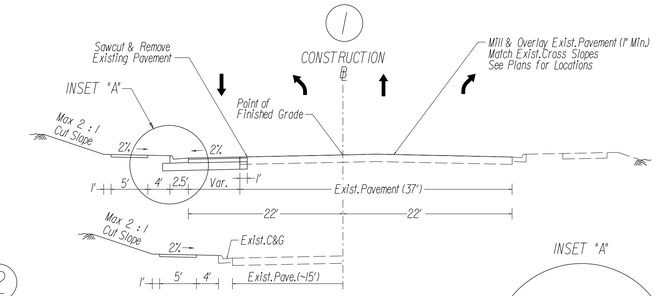
30. Items depectided as NIC are not included in Contract.

31. The following symbols are used to depict Erosion Control items in the plan assembly:

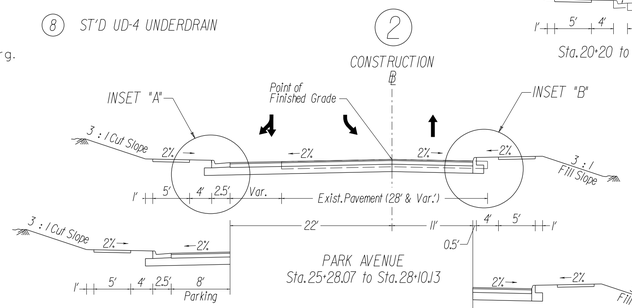
TFB Denotes Temporary Filter Barrier
TSF Denotes Temporary Silt Fence
TDC Denotes Temporary Diversion Channel
DD Denotes Temporary Diversion Dike
ST Denotes Temporary Silt Trap
Denotes Rock Check Dam, Type I
Denotes Rock Check Dam, Type II
CIP Denotes Culvert Inlet Protection
DIST Denotes Drop Inlet Silt Trap

TYPICAL SECTIONS

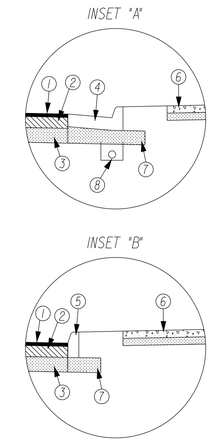
1. 2" ASPHALT CONCRETE SURFACE COURSE TYPE SM-12.5A
2. 4" ASPHALT CONCRETE BASE COURSE TYPE BM-25.0
3. 8" AGGREGATE BASE COURSE TYPE I NO.21B
4. ST'D CG-6 CURB & GUTTER
5. ST'D CG-2 CURB
6. 5' CONCRETE SIDEWALK (4" THICK) WITH 4" AGGR. BASE MAT'L, TY. I, NO. 21B BEDDING
7. VAR. DEPTH (4" MIN.) AGGREGATE BASE MAT'L, TYPE I, NO. 21B
8. ST'D UD-4 UNDERDRAIN



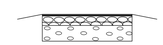
Sta. 20+20 to Sta. 21+72.48
LAKESIDE DRIVE
Sta. 21+72.48 to Sta. 24+84.00



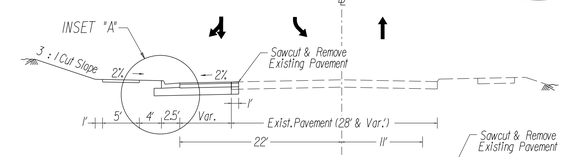
Sta. 26+45 to Sta. 27+97
PARK AVENUE
Sta. 25+28.07 to Sta. 28+10.13
Sta. 26+50 to Sta. 26+92



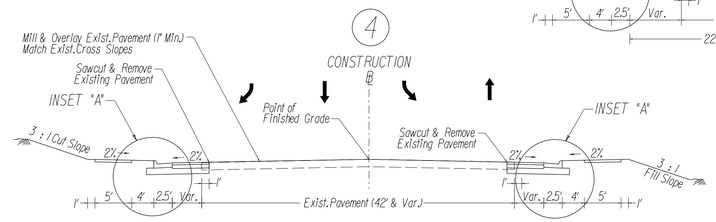
ENTRANCE TYPE III



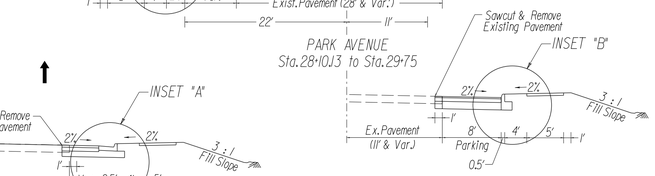
2" Asphalt Concrete Surface Course Type SM-12.5A
4" Asphalt Concrete Base Course Type BM-25.0
8" Aggregate Base Course Type I No. 21B



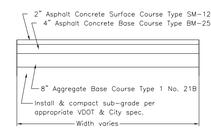
PARK AVENUE
Sta. 28+10.13 to Sta. 29+75



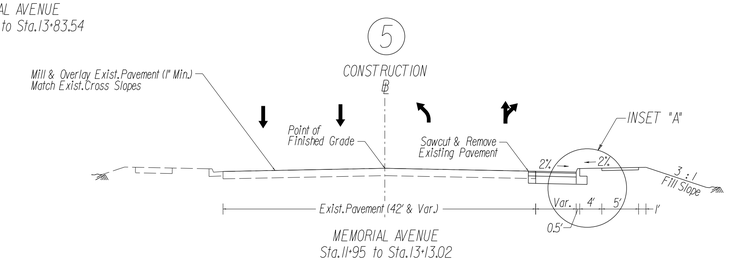
MEMORIAL AVENUE
Sta. 13+13.02 to Sta. 13+83.54



Sta. 27+89.96 to Sta. 28+67.17



TRENCH PAVEMENT SECTION OVER WATER MAINS & STORM SEWER OUTSIDE PAVING LIMITS
N.T.S.



MEMORIAL AVENUE
Sta. 11+95 to Sta. 13+13.02

McCORMICK TAYLOR

PREPARED BY:
McCORMICK TAYLOR
NORTH SHORE COMMONS A
4951 LAKE BROOK DRIVE, SUITE 275
GLEN ALLEN, VA 23060

PREPARED FOR:
CITY OF LYNCHBURG
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

COMMONWEALTH OF VIRGINIA
RICK JAMES DeLONG
Lic. No. 031642
02-06-15
PROFESSIONAL ENGINEER

NO.	REVISIONS	DATE	APPR.

MEMORIAL AVE/LAKESIDE DR/PARK AVE INTERSECTION IMPROVEMENTS
VDOT PROJECT NO. 0163-118-192
FEDERAL PROJECT NO. HSIP-5118
CITY PROJECT NUMBER. 11011-R WS

NOT TO SCALE

TYPICAL SECTIONS & NOTES

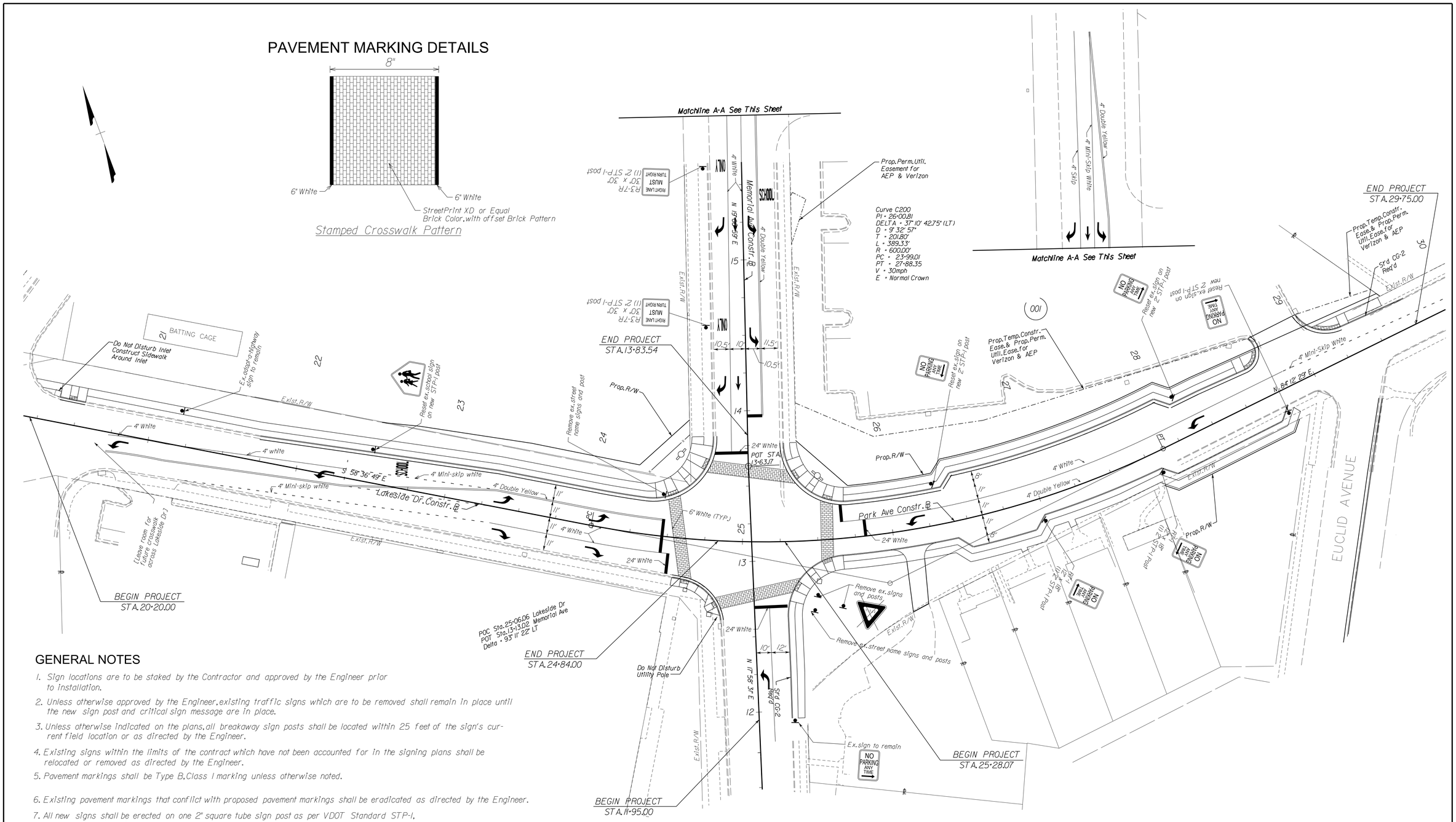
DATE: FEB. 06, 2015

SHEET NO. 3 OF 14

PROJECT MANAGER SHARON WHITE (VDOT)
SURVEYED BY GUFFEY WARNER & ASSOC. AND NXL, INC.
DESIGN SUPERVISED BY DONALD DeBERRY, P.E. (CITY OF LYNCHBURG) 434-455-3935
DESIGNED BY RICK J. DELONG (MCCORMICK TAYLOR, INC.)

PAVEMENT MARKING DETAILS

Stamped Crosswalk Pattern



GENERAL NOTES

1. Sign locations are to be staked by the Contractor and approved by the Engineer prior to installation.
2. Unless otherwise approved by the Engineer, existing traffic signs which are to be removed shall remain in place until the new sign post and critical sign message are in place.
3. Unless otherwise indicated on the plans, all breakaway sign posts shall be located within 25 feet of the sign's current field location or as directed by the Engineer.
4. Existing signs within the limits of the contract which have not been accounted for in the signing plans shall be relocated or removed as directed by the Engineer.
5. Pavement markings shall be Type B, Class I marking unless otherwise noted.
6. Existing pavement markings that conflict with proposed pavement markings shall be eradicated as directed by the Engineer.
7. All new signs shall be erected on one 2" square tube sign post as per VDOT Standard STP-1, unless noted otherwise on the plans.

McCORMICK TAYLOR

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PREPARED FOR:
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DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

COMMONWEALTH OF VIRGINIA
ANDREW JOHN PARKER
Lic. No. 048506
02/06/15
PROFESSIONAL ENGINEER

NO.	REVISIONS	DATE	APPR.

MEMORIAL AVE/LAKESIDE DR/PARK AVE
INTERSECTION IMPROVEMENTS
VDOT PROJECT NO. 0163-118-192
FEDERAL PROJECT NO. HSIP-5118
CITY PROJECT NUMBER. 11011-R WS

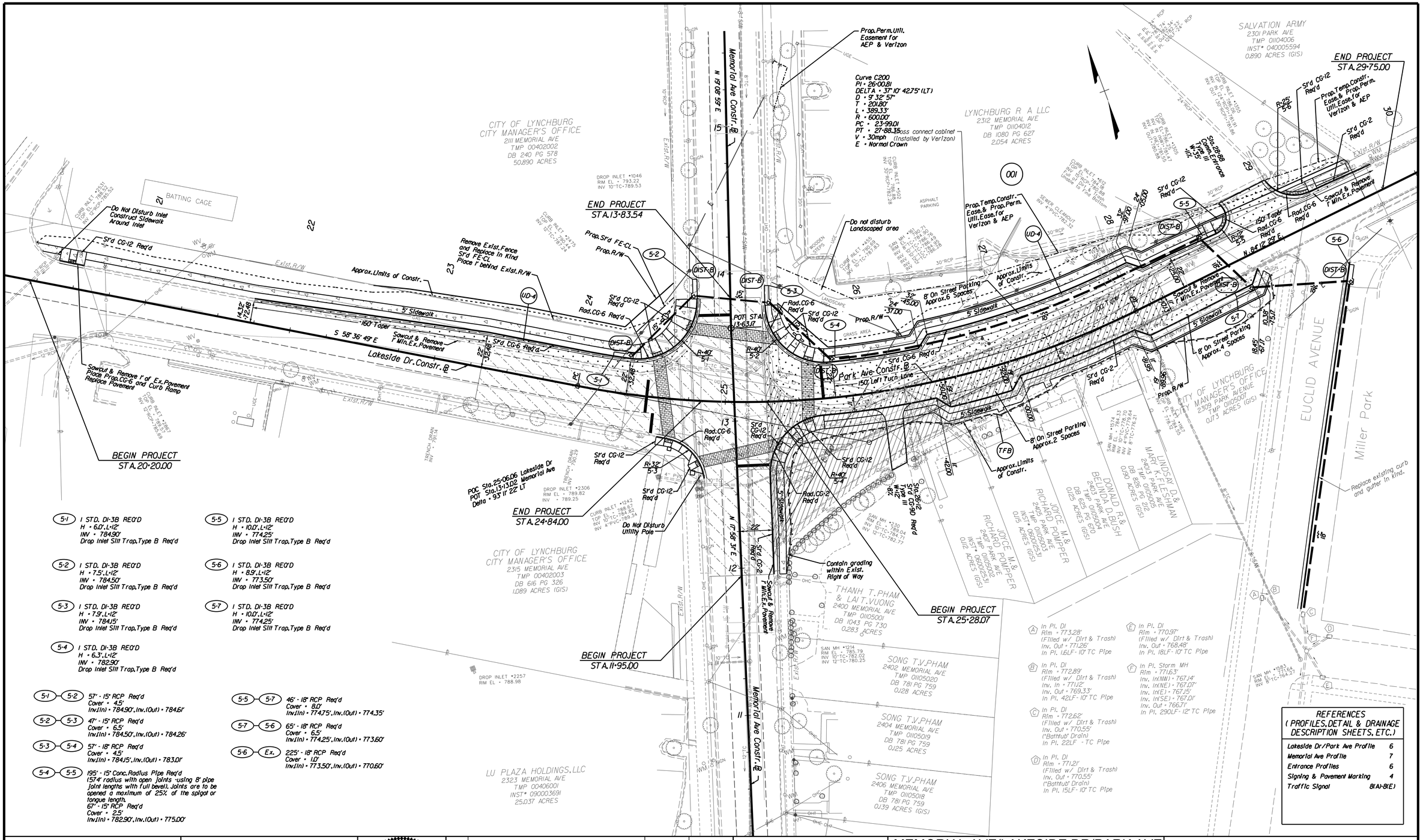
SCALE 0 30' 60'

SIGNING & PAVEMENT MARKING PLAN

DATE: FEB. 06, 2015

SHEET NO. 4 OF 14

PROJECT MANAGER SHARON WHITE (VDOT)
SURVEYED BY GUFFEY WARNER & ASSOC. AND NXL, INC.
DESIGN SUPERVISED BY DONALD DeBERRY, P.E. (CITY OF LYNCHBURG) 434-455-3935
DESIGNED BY RICK J. DELONG (MCCORMICK TAYLOR, INC.)



REFERENCES (PROFILES, DETAIL & DRAINAGE DESCRIPTION SHEETS, ETC.)	
Lakeside Dr/Park Ave Profile	6
Memorial Ave Profile	7
Entrance Profiles	6
Signing & Pavement Marking	4
Traffic Signal	8(A)-8(E)

McCORMICK TAYLOR

PREPARED BY:
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PREPARED FOR:
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ENGINEERING DIVISION

COMMONWEALTH OF VIRGINIA
RICK JAMES DeLONG
Lic. No. 031642
02-06-15
PROFESSIONAL ENGINEER

NO.	REVISIONS	DATE	APPR.

MEMORIAL AVE/LAKESIDE DR/PARK AVE INTERSECTION IMPROVEMENTS

VDOT PROJECT NO. 0163-118-192
FEDERAL PROJECT NO. HSIP-5118
CITY PROJECT NUMBER. 11011-R WS

SCALE
0 30' 60'

ROADWAY PLAN

DATE: FEB. 06, 2015

SHEET NO. 5 OF 14

PROJECT MANAGER SHARON WHITE (VDOT)
SURVEYED BY GUFFEY WARNER & ASSOC. AND NXL, INC.
DESIGN SUPERVISED BY DONALD DeBERRY, P.E. (CITY OF LYNCHBURG) 434-455-3935
DESIGNED BY RICK J. DELONG (MCCORMICK TAYLOR, INC.)

5-1: 1 STD. DI-3B REQ'D
H • 6.0', L • 12'
INV • 784.90'
Drop Inlet Silt Trap, Type B Req'd

5-2: 1 STD. DI-3B REQ'D
H • 7.5', L • 12'
INV • 784.50'
Drop Inlet Silt Trap, Type B Req'd

5-3: 1 STD. DI-3B REQ'D
H • 7.9', L • 12'
INV • 784.15'
Drop Inlet Silt Trap, Type B Req'd

5-4: 1 STD. DI-3B REQ'D
H • 6.3', L • 12'
INV • 782.90'
Drop Inlet Silt Trap, Type B Req'd

5-5: 1 STD. DI-3B REQ'D
H • 10.0', L • 12'
INV • 774.25'
Drop Inlet Silt Trap, Type B Req'd

5-6: 1 STD. DI-3B REQ'D
H • 8.9', L • 12'
INV • 773.50'
Drop Inlet Silt Trap, Type B Req'd

5-7: 1 STD. DI-3B REQ'D
H • 10.0', L • 12'
INV • 774.25'
Drop Inlet Silt Trap, Type B Req'd

5-1 — 5-2: 57' - 15" RCP Req'd
Cover • 4.5'
Inv.(In) • 784.90', Inv.(Out) • 784.61'

5-2 — 5-3: 47' - 15" RCP Req'd
Cover • 6.5'
Inv.(In) • 784.50', Inv.(Out) • 784.26'

5-3 — 5-4: 57' - 18" RCP Req'd
Cover • 4.5'
Inv.(In) • 784.15', Inv.(Out) • 783.01'

5-4 — 5-5: 195' - 15" Conc. Radius Pipe Req'd
(574' radius with open joints - using 8' pipe joint lengths with full bevel). Joints are to be opened a maximum of 25% of the spigot or tongue length.
67' - 15" RCP Req'd
Cover • 2.5'
Inv.(In) • 782.90', Inv.(Out) • 775.00'

5-5 — 5-7: 46' - 18" RCP Req'd
Cover • 8.0'
Inv.(In) • 774.75', Inv.(Out) • 774.35'

5-7 — 5-6: 65' - 18" RCP Req'd
Cover • 6.5'
Inv.(In) • 774.25', Inv.(Out) • 773.60'

5-6 — Ex.: 225' - 18" RCP Req'd
Cover • 1.0'
Inv.(In) • 773.50', Inv.(Out) • 770.60'

McCORMICK TAYLOR

PREPARED BY:
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PREPARED FOR:
CITY OF LYNCHBURG
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

COMMONWEALTH OF VIRGINIA
RICK JAMES DeLONG
Lic. No. 031642
02-06-15
PROFESSIONAL ENGINEER

NO.	REVISIONS	DATE	APPR.

MEMORIAL AVE/LAKESIDE DR/PARK AVE INTERSECTION IMPROVEMENTS

VDOT PROJECT NO. 0163-118-192
FEDERAL PROJECT NO. HSIP-5118
CITY PROJECT NUMBER. 11011-R WS

SCALE 0 30' 60'

EROSION AND SEDIMENT CONTROL PLAN

DATE: FEB. 06, 2015

SHEET NO. 5A OF 14

PROJECT MANAGER SHARON WHITE (VDOT)
SURVEYED BY GUFFEY WARNER & ASSOC. AND NXL, INC.
DESIGN SUPERVISED BY DONALD DeBERRY, P.E. (CITY OF LYNCHBURG) 434-455-3935
DESIGNED BY RICK J. DELONG (MCCORMICK TAYLOR, INC.)

I. PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO CONSTRUCT INTERSECTION IMPROVEMENTS AT MEMORIAL AVENUE/LAKESIDE DRIVE/PARK AVENUE. THE PARK AVENUE APPROACH WILL BE REALIGNED TO PROVIDE BETTER FLOW THROUGH THE INTERSECTION. THE SLIP LANE FROM MEMORIAL AVENUE TO RIGHT ON PARK AVENUE WILL BE REMOVED, REDUCING IMPERVIOUS AREA OF THE PROJECT SITE. A SEPARATE STORM SEWER WILL BE CONSTRUCTED TO REMOVED THIS AREA FROM THE COMBINED SEWER OVERFLOW SYSTEM. WATER AND SEWER LINES IN THE INTERSECTION WILL BE RELOCATED. APPROXIMATELY 25,303 SQUARE FEET WILL BE DISTURBED TO COMPLETE THIS PROJECT.

II. EXISTING SITE CONDITIONS

THE SURROUNDING TOPOGRAPHY OF THE MEMORIAL AVENUE/LAKESIDE DRIVE/PARK AVENUE INTERSECTION IMPROVEMENT PROJECT CONSISTS OF MODERATELY SLOPING ROAD GRADES AND TERRAIN. THE PROJECT LIES ADJACENT TO RESIDENTIAL DEVELOPMENT AND DEVELOPED COMMERCIAL/PUBLIC FACILITIES AREAS THAT DRAIN TOWARDS THE JAMES RIVER.

III. ADJACENT PROPERTIES

THE MEMORIAL AVENUE/LAKESIDE DRIVE/PARK AVENUE INTERSECTION IS BORDERED BY RESIDENTIAL DEVELOPMENT TO THE SOUTHEAST, COMMERCIAL RETAIL TO THE NORTHEAST, HIGH SCHOOL ATHLETIC FIELDS TO THE NORTHWEST, AND A PUBLIC LIBRARY TO THE SOUTHWEST.

IV. OFF-SITE AREAS

UNSUITABLE MATERIAL SHALL BE HAULED FROM THE SITE AND DISPOSED OF IN AN APPROVED MANNER. THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION AND SEDIMENT CONTROL PLAN TO CITY OF LYNCHBURG PERTAINING TO ANY NECESSARY OFF-SITE DISTURBED AREAS OR ON-SITE DISTURBED AREAS OUTSIDE THE LIMITS OF CLEARING SHOWN ON THESE PLANS, SUCH AS BORROW PITS, STOCKPILES, STAGING AREAS, AND SPOIL AREAS THAT ARE USED FOR THIS PROJECT.

V. SOILS

SOILS AFFECTED BY THE PROPOSED CONSTRUCTION AT THE SITE ARE CLASSIFIED AS URBAN PREVIOUSLY DEVELOPED.

VI. CRITICAL AREAS

CARE SHALL BE TAKEN TO STABILIZE ALL SLOPES AND PREVENT EROSION. CARE SHALL BE TAKEN TO PREVENT SEDIMENT LADEN RUNOFF FROM LEAVING THE SITE.

VII. EROSION AND SEDIMENT CONTROL MEASURES

ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED BY THE CONTRACTOR IN ACCORDANCE WITH THE LATEST EDITION OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK. SYMBOLS, DETAILS, AND DIMENSIONS USED ARE TAKEN FROM THE HANDBOOK, AS WELL AS THE VIRGINIA DEPARTMENT OF TRANSPORTATION'S ROAD AND BRIDGE STANDARDS, LATEST EDITION, VOLUME 1OF 2.

A. STRUCTURAL PRACTICES:

1. SILT FENCE (SF), SPEC. 3.05: SILT FENCE BARRIERS SHALL BE PROVIDED WHERE SHOWN AND AS NEEDED TO PREVENT SEDIMENT FROM LEAVING THE SITE.

2. STORM DRAIN INLET PROTECTION (IP), SPEC. 3.08 (VDOT DIST-B, St'd EC-6): STORM DRAIN INLET PROTECTION SHALL BE PROVIDED AT ALL DROP INLETS IMMEDIATELY AFTER THEY ARE INSTALLED.

B. VEGETATIVE PRACTICES:

PERMANENT SEEDING (PS), SPEC. 3.32: PERMANENT AND TEMPORARY SEEDING SHALL BE PROVIDED PER NOTE •28 ON SHEET 3 FOR ALL DISTURBED AREAS.

C. MINIMUM STANDARDS (MS):

ALL APPLICABLE VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS AND MINIMUM STANDARDS SHALL BE ADHERED TO DURING ALL PHASES OF CONSTRUCTION. THESE INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:

MS-1: Permanent 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 (undisturbed) for longer than 30 days. Permanent stabilization shall be applied to areas that are to be left dormant for more than one year.

MS-2: Temporary soil stockpiles shall be stabilized or protected with sediment trapping measures. Provide temporary protection and permanent stabilization of all soil stockpiles on site as well as soil transported from the project site.

MS-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 in the opinion of the architect/engineer, is uniform, mature enough to survive and will inhibit erosion.

MS-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-distributing activity and shall be made functional before upslope land disturbance or timbering takes place.

MS-5: Stabilization measures shall be applied to earthen structures such as dams, dikes and diversions immediately after installation.

MS-6: Surface runoff from disturbed areas that is comprised of flow from drainage areas greater than or equal to three acres shall be controlled to accommodate the anticipated sediment loading from the land-disturbing activity. The outfall device or system design shall take into account the total drainage areas flowing through the disturbed area to be served by the basin.

MS-7: Cut and fill slopes shall be 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.

MS-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.

MS-9: Whenever water seeps from a slope face, adequate drainage or other protection shall be provided.

MS-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.

MS-11: Before stormwater conveyance channels 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.

MS-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.

MS-13: When a live watercourse must be crossed by construction vehicles more than twice in any six-month period, a temporary stream crossing constructed of non-erodible material shall be provided.

MS-14: All applicable federal, state, and local regulations pertaining to working in or crossing live watercourses shall be met.

MS-15: The bed and banks of a watercourse shall be stabilized immediately following after work in the watercourse is completed.

MS-16: Underground utility lines shall be installed in accordance with the standards in addition to other applicable criteria:
a. No more than 500' of trench shall be opened at one time.
b. Excavated material shall be placed on the uphill side of trenches.
c. Effluent from dewatering operations shall be filtered or passed through an approved sediment trapping device or both, and discharged in a manner that does not adversely affect flowing streams or offsite property.
d. Restabilization shall be accomplished in accordance with these regulations.
e. Applicable safety regulations shall be complied with.

MS-17: Where construction vehicle access routes intersect paved public roads, provisions shall be made to minimize the transport of sediment by vehicular tracking onto the paved surface. The road 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.

MS-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 authority having jurisdiction. Trapped sediment and the disturbed soil areas resulting from the disposition of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation.

MS-19: Properties and waterways downstream from development sites shall be protected from sediment deposition, erosion and damage due to increases in volume, velocity and peak flow rate of stormwater runoff for the stated frequency storm of 24-hour duration in accordance with the following standards and criteria:

A. Concentrated stormwater runoff leaving a development site shall be discharged directly into an adequate natural or man-made receiving channel, pipe or storm sewer system. For those sites where runoff is discharged into a pipe or pipe system, downstream stability analysis at the outfall of the pipe or pipe system shall be performed.

B. Adequacy of all channels and pipes shall be verified in the following manner:

(1) 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.
(2) Natural channels shall be analyzed by the use of a two-year frequency storm to verify that the stormwater will not overtop channel banks nor cause erosion of channel bed or banks.
(3) All previously constructed man-made channels shall be analyzed by the use of a ten-year frequency storm to verify that stormwater will not overtop its banks and by the use of a two-year storm to demonstrate that stormwater will be contained within the pipe or system.
(4) Pipes and storm sewer systems shall be analyzed by the use of a ten-year frequency storm to verify that the stormwater will be contained within the pipe or system.

C. If existing natural receiving channels or previously constructed man-made channels or pipes are not adequate, the applicant shall:

(1) Improve the channels to a condition where a ten-year frequency storm will not overtop the banks and a two-year frequency 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 frequency 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 storm 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.
(4) Provide a combination of channel improvement, stormwater detention/retention 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 hydrological analysis shall be based on the existing watershed characteristics and the ultimate development condition of the subject project.

F. If the applicant chooses an option that includes stormwater detention/retention, he shall obtain approval from the locality of a plan for maintenance of the detention facilities. The plan shall set forth the maintenance requirements of the facility and the person responsible for performing the maintenance.

G. Increased volumes of sheet flows that may cause erosion or sedimentation on adjacent property shall be diverted to a stable outlet, adequate channel or detention facility.

H. In applying these stormwater management criteria, individual lots in a residential subdivision development shall not be considered to be separate development projects. Instead, the residential subdivision development, as a whole, shall be considered to be a single development project. Hydrologic parameters that reflect the ultimate subdivision development shall be used in all engineering calculations.

I. Proposed commercial or industrial subdivisions shall apply theses stormwater management criteria to the development as a whole, hydrologic parameters that reflect the ultimate subdivision development shall be used in all engineering calculations.

D. MAINTENANCE:

ALL EROSION AND SEDIMENT CONTROL STRUCTURES AND SYSTEMS SHALL BE MAINTAINED, INSPECTED, AND REPAIRED AS NEEDED TO INSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED AT THE END OF EACH DAY AND AFTER EVERY RAINFALL EVENT.

1. DAMAGE TO EROSION CONTROL MEASURES CAUSED BY CONSTRUCTION TRAFFIC OR OTHER ACTIVITY SHALL BE REPAIRED BEFORE THE END OF EACH WORKING DAY.

2. MAINTAIN ALL SEEDED AREAS UNTIL A UNIFORM STAND IS ACCEPTED.

3. (SPEC. 3.02) THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHT-OF-WAYS. ADDITIONAL STONE, WASHING, OR REWORKING OF EXISTING STONE MAY BE REQUIRED. PROVIDE FOR EQUIPMENT WASHING AS NEEDED TO PREVENT THE TRANSPORT OF SOIL ONTO EXISTING ASPHALT ROADWAYS. ANY SEDIMENT ON THE PAVEMENT SHALL BE REMOVED IMMEDIATELY.

4. (SPEC. 3.03) TEMPORARY CONSTRUCTION ROADS MAY REQUIRE PERIODIC TOP DRESSING WITH NEW GRAVEL.

5. (SPEC. 3.05) SILT FENCE BARRIERS WILL BE CHECKED DAILY FOR UNDERMINING OR DETERIORATION OF THE FABRIC. SEDIMENT SHALL BE REMOVED WHEN THE LEVEL REACHES HALF WAY TO THE TOP OF THE BARRIER.

6. (SPEC. 3.07) THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED. SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE HALF THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.

7. (SPEC.3.08) THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED. AGGREGATE SHALL BE REPLACED OR CLEANED WHEN INSPECTION REVEALS THAT CLOGGED VOIDS ARE CAUSING PONDING PROBLEMS WHICH INTERFERE WITH ON-SITE CONSTRUCTION. SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE HALF THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.

8. (SPEC. 3.09) THE MEASURE SHALL BE INSPECTED AFTER EVERY STORM AND REPAIRS MADE TO THE DIKE, FLOW CHANNEL, OUTLET OR SEDIMENT TRAPPING FACILITY, AS NECESSARY. ONCE EVERY TWO WEEKS, WHETHER A STORM EVENT HAS OCCURRED OR NOT, THE MEASURE SHALL BE INSPECTED AND REPAIRS MADE IF NEEDED. DAMAGES CAUSED BY CONSTRUCTION TRAFFIC OR OTHER ACTIVITY MUST BE REPAIRED BEFORE THE END OF EACH WORKING DAY.

9. (SPEC. 3.18 & 3.19) RIPRAP INSTALLATIONS SHOULD BE INSPECTED PERIODICALLY TO DETERMINE IF HIGH FLOWS HAVE CAUSED SCOUR BENEATH THE RIPRAP OR GEOTEXTILE FABRIC OR DISLODGED ANY OF THE STONE.

10. (SPEC. 3.20) CHECK DAMS SHALL BE INSPECTED FOR SEDIMENT ACCUMULATION AFTER EACH RUN-OFF PRODUCING STORM EVENT. SEDIMENT SHALL BE REMOVED WHEN IT REACHES ONE HALF OF THE ORIGINAL HEIGHT OF THE MEASURE. REGULAR INSPECTIONS SHOULD BE MADE TO INSURE THAT THE CENTER OF THE DAM IS LOWER THAN THE EDGES. EROSION CAUSED BY HIGH FLOWS AROUND THE EDGES OF THE DAM SHOULD BE CORRECTED IMMEDIATELY.

11. (SPEC. 3.31 & 3.32) AREAS WHICH FAIL TO ESTABLISH VEGETATIVE COVER ADEQUATE TO PREVENT RILL EROSION WILL BE RESEEDED AS SOON AS SUCH AREAS ARE IDENTIFIED.

12. (SPEC. 3.36) ALL SOIL STABILIZATION BLANKETS AND MATTING SHALL BE INSPECTED AFTER RAINSTORMS TO CHECK FOR EROSION AND UNDERMINING. IF WASHOUT OR BREAKAGE OCCURS, REINSTALL THE MATERIAL AFTER REPAIRING DAMAGE TO THE SLOPE OR DITCH.

VIII. SEQUENCE OF CONSTRUCTION:

1. INSTALL SILT FENCE AND OTHER APPLICABLE EROSION AND SEDIMENT CONTROL MEASURES.
2. CLEAR AND GRUB AS NEEDED, AND REMOVE UNSUITABLE MATERIAL TO AN APPROVED LOCATION.
3. APPLY TEMPORARY AND PERMANENT SEEDING TO MINIMIZE TRANSPORT OF SEDIMENT.
4. MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES AS IS PRACTICABLE WHILE PERFORMING GRADING TO BRING ALL AREAS TO GRADES SHOWN.
5. CONSTRUCT ROADWAY IMPROVEMENTS PER SEQUENCE OF CONSTRUCTION ON SHEETS 2A(1) & 2A(2).
6. SOIL STABILIZATION BLANKETS SHALL BE PLACED ON AREAS INDICATED IMMEDIATELY AFTER FINISHED GRADE IS REACHED AND AS PRACTICAL.
7. PERFORM PERMANENT SEEDING AND STABILIZE ALL DISTURBED AREAS.
8. EROSION CONTROL DEVICES MUST REMAIN IN PLACE UNTIL RELEASED BY THE CITY OF LYNCHBURG EROSION CONTROL INSPECTOR.
9. REMOVE TEMPORARY EROSION CONTROL MEASURES, AND STABILIZE AFFECTED AREAS.
10. CLOSE OUT THE PROJECT.

FOR EROSION AND SEDIMENT CONTROL PURPOSES ONLY

McCORMICK TAYLOR

PREPARED BY:
McCORMICK TAYLOR
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4951 LAKE BROOK DRIVE, SUITE 275
GLEN ALLEN, VA 23060

PREPARED FOR:
CITY OF LYNCHBURG
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

COMMONWEALTH OF VIRGINIA
RICK JAMES DeLONG
Lic. No. 031642
02-06-15
PROFESSIONAL ENGINEER

NO.	REVISIONS	DATE	APPR.

MEMORIAL AVE/LAKESIDE DR/PARK AVE
INTERSECTION IMPROVEMENTS
VDOT PROJECT NO. 0163-118-192
FEDERAL PROJECT NO. HSIP-5118
CITY PROJECT NUMBER. 11011-R WS

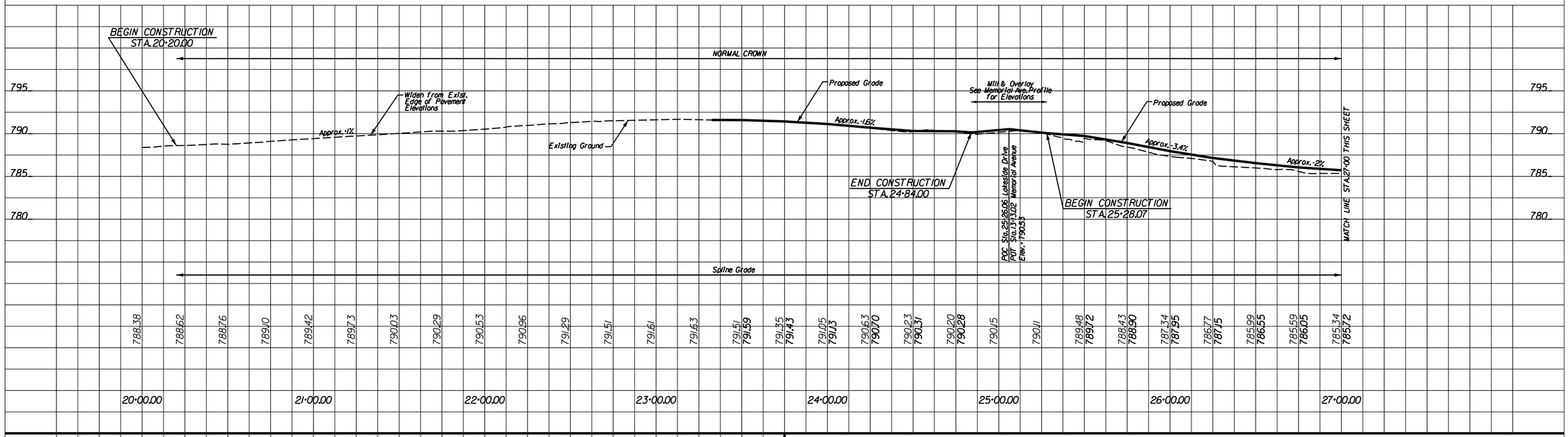
EROSION & SEDIMENT CONTROL NARRATIVE

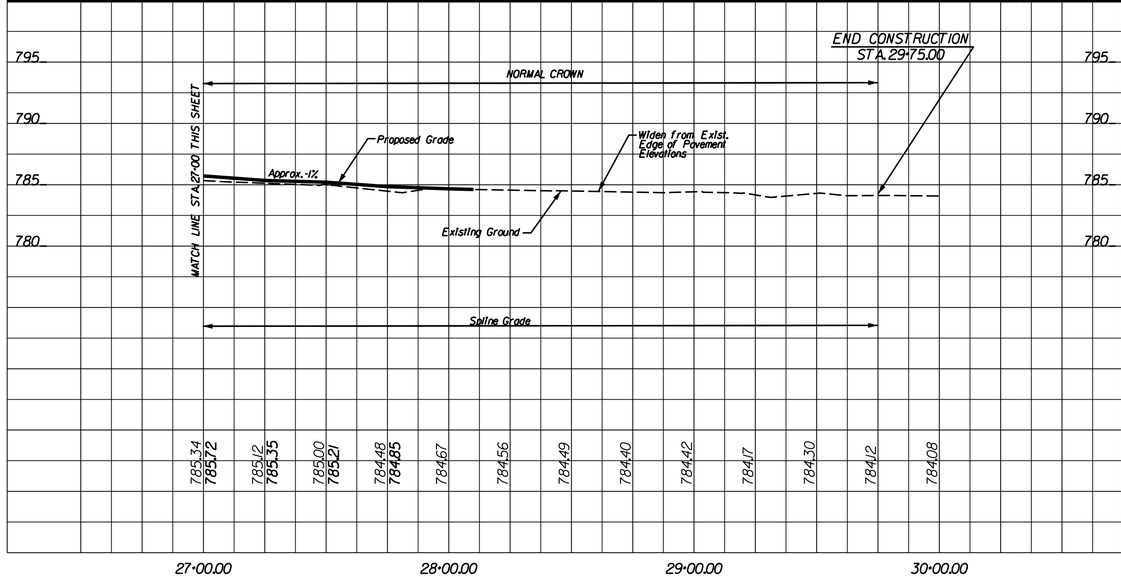
DATE: FEB. 06, 2015

SHEET NO. 5(B) OF 14

PROJECT MANAGER SHARON WHITE (VDOT)
SURVEYED BY GUFFEY WARNER & ASSOC. AND NXL, INC.
DESIGN SUPERVISED BY DONALD DeBERRY, P.E. (CITY OF LYNCHBURG) 434-455-3935
DESIGNED BY RICK J. DELONG (MCCORMICK TAYLOR, INC.)

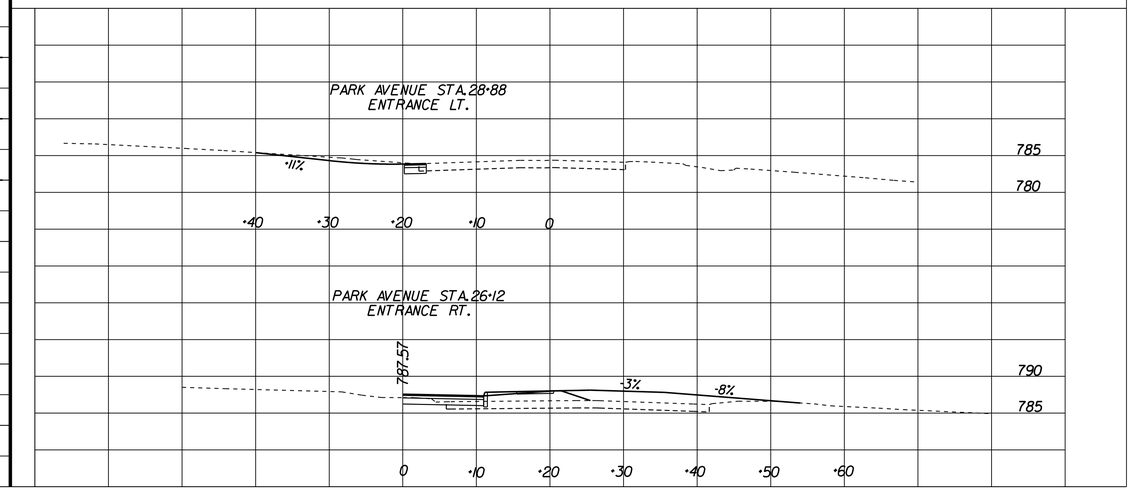
LAKESIDE DRIVE / PARK AVENUE PROFILE





ENTRANCE PROFILES

SCALE 0 10' 20'



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NO.	REVISIONS	DATE	APPR.

MEMORIAL AVE/LAKESIDE DR/PARK AVE
INTERSECTION IMPROVEMENTS
VDOT PROJECT NO. 0163-118-192
FEDERAL PROJECT NO. HSIP-5118
CITY PROJECT NUMBER. 11011-R WS

SCALE 0 30' 60'

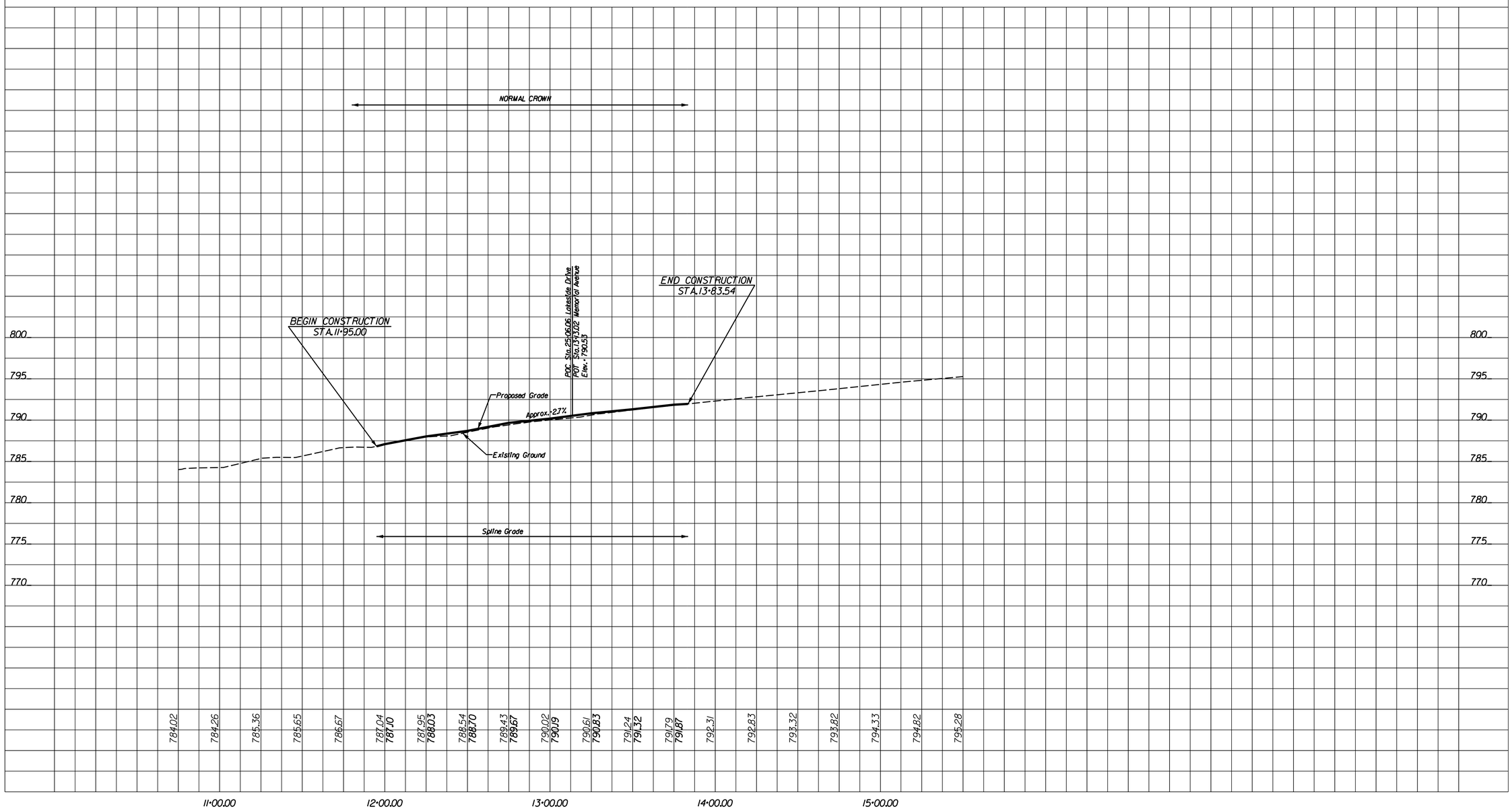
LAKESIDE DRIVE / PARK AVENUE
ROADWAY PROFILE

DATE: FEB. 06, 2015

SHEET NO. 6 OF 14

PROJECT MANAGER SHARON WHITE (VDOT)
SURVEYED BY GUFFEY WARNER & ASSOC. AND NXL, INC.
DESIGN SUPERVISED BY DONALD DeBERRY, P.E. (CITY OF LYNCHBURG) 434-455-3935
DESIGNED BY RICK J. DELONG (MCCORMICK TAYLOR, INC.)

MEMORIAL AVENUE PROFILE



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NO.	REVISIONS	DATE	APPR.

MEMORIAL AVE/LAKESIDE DR/PARK AVE
INTERSECTION IMPROVEMENTS
VDOT PROJECT NO. 0163-118-192
FEDERAL PROJECT NO. HSIP-5118
CITY PROJECT NUMBER. 11011-R WS

SCALE
0 30' 60'

MEMORIAL AVENUE
ROADWAY PROFILE

DATE: FEB. 06, 2015

SHEET NO. 7 OF 14