PRELIMINARY SITE PLAN - INOVA HOSPITAL CAMPUS PHASE I (BUILDINGS A, B & C)

CITY OF ALEXANDRIA, VIRGINIA

DATE: NOVEMBER 04, 2022

PROJECT TEAM

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AREA TABULATIONS:

TOTAL SITE/LOT AREA = 10.39 AC. 452,385 AC.
PRIVATE ROADS = 0.47 AC. 20,745 AC.
BLOCK Q - CENTRAL PLAZA WEST = 0.34 AC. 15,022 AC.
TOTAL DEVELOPMENT AREA ABOVE GRADE = 9.56 AC. 416,676 AC.

ZONING TABULATIONS:

ON-SITE LOCATIONS / ADDRESSES: T.M. #047.02-03-10 / 6001 DUKE ST. ALEXANDRIA, VA 22314-1930

TOTAL SITE/LOT AREA: 452,385 SF OR 10.39 ACRES

EXISTING ZONE: CDD #29 (COORDINATED DEVELOPMENT DISTRICT #29)
PROPOSED ZONE: CDD #29 (COORDINATED DEVELOPMENT DISTRICT #29)

OPEN SPACE REQUIREMENTS: 62,500 SF (15% OF DEVELOPMENT AREA AT-GRADE)
+ 10,000 SF (ABOVE-GRADE)
72,500 SF REQUIRED.

OPEN SPACE PROVIDED: 74,200 SF (64,000 SF AT-GRADE (PUBLIC) + 10,200 SF ABOVE-GRADE(PRIVATE))

EXISTING USE: VACANT
PROPOSED USE: HOSPITAL & MEDICAL CARE FACILITY

FLOOR AREA CALCULATION:

BUILDINGS	GROSS AREA (SF)	FLOOR AREA (SF)
BUILDING A (HOSPITAL)	569,114	459,594
BUILDING B (CANCER CENTER)	110,831	96,873
BUILDING C (SCC BUILDING)	82,733	73,560
SUBTOTAL(BUILDINGS):	762,678	630,027
PARKING GARAGE(ABOVE GRADE)	306,274	298,380
TOTAL AREAS:	1,068,952	928,407

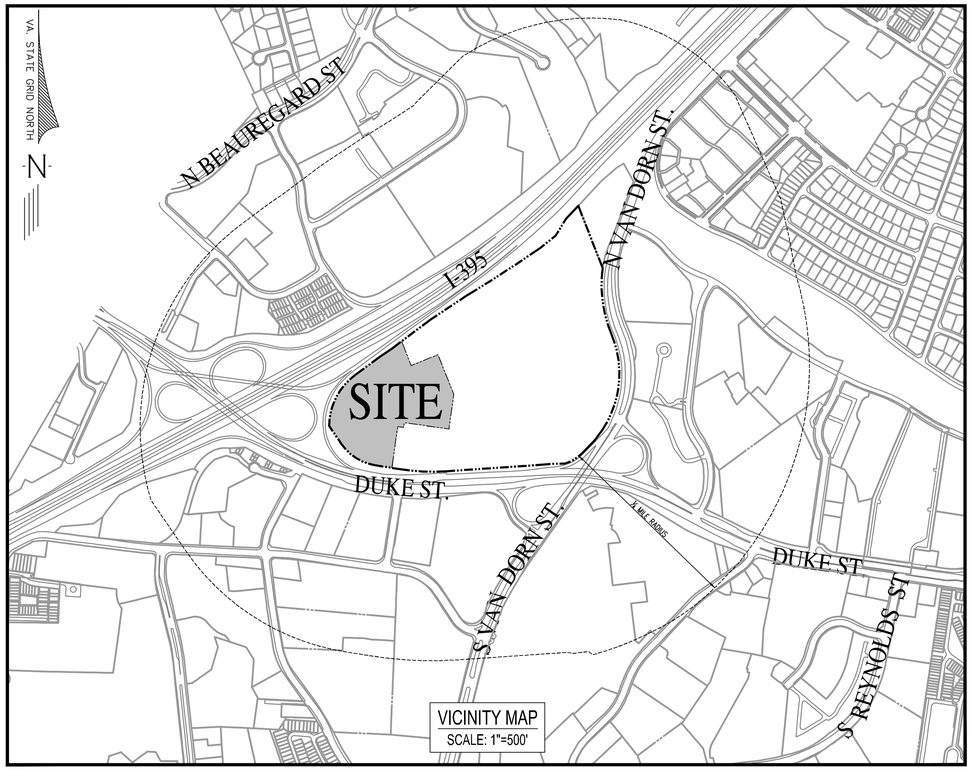
FLOOR AREA RATIO TABULATION (FAR):
FAR PERMITTED: 3.96*
FAR PROPOSED: 2.06

*INCLUDES BUILDING FLOOR AREA (1,100,000 SF PER CDD CONCEPT PLAN + 250,000 SF PER CDD CONDITION #10.D) AND NEW ABOVE-GRADE STRUCTURED PARKING FLOOR AREA (280,000 SF PER CDD CONCEPT PLAN + 160,000 SF PER CDD CONDITION #10.D)

	BUILDING A	BUILDING B	BUILDING C	ABOVE GRADE GARAGE
MIN/MAX HEIGHT PERMITTED	65 FT. MIN, 250 FT. MAX	65 FT. MIN, 250 FT. MAX	50 FT. MIN, 150 FT. MAX	N/A
BUILDING HEIGHT PROPOSED	184 FT.	77 FT.	79 FT.	87 FT.
AVG. FINISHED GRADE	216.34	209.86	212.07	202.12

YARDS: REQUIRED: N/A PROPOSED: N/A
FRONTAGE: REQUIRED: N/A PROPOSED: N/A

BUILDING CODE ANALYSIS	BUILDING A	ABOVE GRADE GARAGE	BUILDING B	BUILDING C
USE GROUP:	I-2,B,A-2,A-3,S-2,F-1	S-2, OPEN PARKING	B/AMBULATORY, S-2	B
NUMBER OF STORIES:	11, 1 STORY PODIUM	6	3	4
TYPE OF CONSTRUCTION:	IA	IB	IB	IB
FLOOR AREA PER FLOOR:	SEE A-SHEETS	SEE A-SHEETS	SEE A-SHEETS	SEE A-SHEETS
FIRE PROTECTION PLAN:	NFPA 10,13,14,16,20	NFPA 10,14,20	NFPA 10,13,14,20	NFPA 10,13,14,20
NOTES:	HIGH-RISE CONSTRUCTION, ATRIUM, HELIPAD, PODIUM	B1 LEVEL BELOW IS PODIUM AS PART OF BLDG A	B1 LEVEL BELOW IS PODIUM	B1 LEVEL BELOW IS PODIUM AS PART OF BLDG A



PARKING TABULATIONS:

PARKING REQUIRED:
- BUILDING A (HOSPITAL): RATIO: 1 SP/2 BEDS (231 BEDS) = 116 SPACES
- BUILDING B (MEDICAL CARE FACILITY): RATIO: 1/200 SF (96,873 SF) = 485 SPACES
- BUILDING C (MEDICAL CARE FACILITY): RATIO: 1/200 SF (73,560 SF) = 368 SPACES

TOTAL PARKING REQUIRED: 969 SPACES

PARKING PROVIDED:
- SURFACE PARKING: 9 SPACES (8 STANDARD, 1 H/C)
- ABOVE-GRADE GARAGE: 647 SPACES (621 STANDARD, 26 H/C)
- BELOW-GRADE GARAGE: 282 SPACES (253 STANDARD, 1 COMPACT, 28 H/C)
- EXISTING GARAGE: 550 SPACES (539 STANDARD, 11 H/C)

TOTAL PARKING PROVIDED: 1,488 SPACES (1,421 STANDARD, 1 COMPACT, 66 H/C)

LOADING SPACES REQUIRED:

BUILDING A (HOSPITAL): RATIO: 1 SP/20,000 SF (467,178 SF) = 24 SPACES
BUILDING B (MEDICAL CARE FACILITY): RATIO: 1/20,000 SF (96,873 SF) = 5 SPACES
BUILDING C (MEDICAL CARE FACILITY): RATIO: 1/20,000 SF (73,610 SF) = 4 SPACES
TOTAL LOADING SPACES REQUIRED: 33 SPACES*

LOADING SPACES PROVIDED: 4 SPACES

*THE APPLICANT REQUESTS A MODIFICATION TO REDUCE THE LOADING SPACES REQUIRED.

TRIP GENERATION:

EXISTING

	In	Out	Total
AM Peak (veh/hr)	133	97	230
PM Peak (veh/hr)	148	187	335

PROPOSED*

BUILDING A

Land Use	ITE Code	Weekday AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily Total
BUILDING A NON-AUTO TRIPS	610	68	30	98	35	77	112	1,019
BUILDING A VEHICULAR TRIPS	**610**	**384**	**171**	**555**	**201**	**436**	**636**	**5,774**

BUILDING B

Land Use	ITE Code	Weekday AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily Total
BUILDING B NON-AUTO TRIPS	610	11	5	15	6	12	18	161
BUILDING B VEHICULAR TRIPS	**610**	**60**	**27**	**87**	**31**	**69**	**100**	**910**

BUILDING C

Land Use	ITE Code	Weekday AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily Total
BUILDING C NON-AUTO TRIPS	720	26	7	33	15	39	54	585
BUILDING C VEHICULAR TRIPS	**720**	**149**	**39**	**188**	**84**	**222**	**306**	**3,317**

*PROPOSED TRIP GENERATION PROVIDED FOR MAXIMUM ALLOWABLE GSF FOR HOSPITAL CAMPUS PER CDD CONCEPT PLAN.

PROJECT NARRATIVE:

DESCRIPTION OF DEVELOPMENT:
IN ACCORDANCE WITH CDD2020-00007, INOVA HEALTH CARE SERVICES PROPOSES TO CONSTRUCT A HOSPITAL CAMPUS ON THE WESTERN PORTION OF THE LANDMARK NEIGHBORHOOD WITHIN THE LANDMARK/VAN DORN SMALL AREA PLAN.

PHASE I OF THE HOSPITAL CAMPUS WILL INCLUDE A HOSPITAL WITH ASSOCIATED BELOW-GRADE AND STRUCTURED PARKING (BUILDING A), A CANCER CENTER (BUILDING B), AND A SPECIALTY CARE CENTER (BUILDING C) WITH ASSOCIATED OPEN SPACE AND INFRASTRUCTURE. IN ADDITION, 550 PARKING SPACES WILL BE LOCATED IN THE EXISTING PARKING STRUCTURE TO SERVE THE HOSPITAL CAMPUS.

LIST OF EXISTING APPROVALS:

- CDD CONCEPTUAL DESIGN PLAN #2020-00007
- DSP #2021-00012
- MASTER SWM/BMP PLAN DSP #2021-00017

SUP/MODIFICATIONS REQUESTED:

- MODIFICATION TO BUILDING HEIGHT-TO-CENTERLINE SETBACKS REQUIRED PURSUANT TO SEC. 6-403(A)
- MODIFICATION TO REDUCE THE LOADING SPACES REQUIRED.
- SUP FOR INCREASE IN PENTHOUSE HEIGHT PURSUANT TO SEC. 6-403(B)(3).
- SUP FOR TRANSPORTATION MANAGEMENT PLAN.

SHEET INDEX

CIVIL SHEETS

Sheet Number	Sheet Title
C1.00	COVER SHEET
C2.00	GENERAL NOTES & DETAILS
C3.00	PROPERTY EXHIBIT
C4.00	CONTEXTUAL PLAN
C5.00	OVERALL EXISTING CONDITIONS
C6.00-C6.10	EXISTING CONDITIONS
C7.00-C7.10	CONCEPT PLAN
C8.00-C8.10	UTILITY PLAN
C9.00-C9.10	GRADING PLAN
C10.00	OPEN SPACE PLAN
C11.00	SWM PRE DEVELOPMENT PLAN
C12.00	SWM POST DEVELOPMENT PLAN
C13.00-C15.00	SWM COMPS & NARRATIVE
C16.00-C20.00	OUTFALL ANALYSIS
C20.00	BMP PLAN
C21.00	BMP COMPS & NARRATIVE
C22.00	WQVD BMP DATA BLOCKS
C23.00	SANITARY SEWER PLAN
C24.00	SANITARY SEWER COMPUTATIONS
C25.00-C25.30	AUTOTURN EXHIBIT
C26.00-C26.10	SIGHT DISTANCE PROFILES
C27.00-C27.10	LIGHTING PLAN

LANDSCAPE SHEETS

Sheet Number	Sheet Title
L1.00	LANDSCAPE PLAN
L2.00	LANDSCAPE PLAN - ROOF
L3.00	LANDSCAPE PLAN - PLANTING SCHEDULE
L3.01	LANDSCAPE PLAN - BIODIVERSITY TABULATIONS
L4.00	LANDSCAPE PLAN - PLANTING PLAN
L4.01	LANDSCAPE PLAN - PLANTING DETAILS
L5.00	LANDSCAPE PLAN - LANDSCAPE SOILS PLAN
L6.00	LANDSCAPE PLAN - LANDSCAPE WATER MANAGEMENT PLAN

ARCHITECTURAL SHEETS

Sheet Number	Sheet Title
A000	CAMPUS MASSING
A100-A	BUILDING A HOSPITAL PLANS
A101-A	BUILDING A HOSPITAL PLANS
A200-A	BUILDING A HOSPITAL ELEVATIONS
A201-A	BUILDING A HOSPITAL ELEVATIONS
A202-A	BUILDING A HOSPITAL ELEVATIONS
A300-A	BUILDING A BUILDING SECTIONS
A400-A	BUILDING A HOSPITAL MASSING IMAGES
A100-G	GARAGE PLANS
A200-G	GARAGE EXTERIOR ELEVATIONS
A300-G	GARAGE BUILDING SECTIONS
A400-G	GARAGE MASSING IMAGES
A100-B	BUILDING B CANCER CENTER PLANS
A200-B	BUILDING B CANCER CENTER ELEVATIONS
A300-B	BUILDING B CANCER CENTER SECTIONS
A400-B	BUILDING B CANCER CENTER MASSING IMAGES
A100-C	BUILDING C SPECIALTY CARE CENTER (SCC) PLANS
A200-C	BUILDING C SPECIAL CARE CENTER (SCC) ELEVATIONS
A300-C	BUILDING C SPECIALTY CARE CENTER (SCC) BUILDING SECTIONS
A400-C	BUILDING C SPECIALTY CARE CENTER (SCC)MASSING IMAGES

GREEN BUILDING NARRATIVE:

THE INOVA ALEXANDRIA HOSPITAL, SCHAR CANCER CENTER AND THE INOVA SPECIALTY CARE CENTER AT LANDMARK (WEST END), INTEND TO PURSUE LEED SILVER CERTIFICATION CONSISTENT WITH THE CDD REQUIREMENTS FOR THE HOSPITAL CAMPUS.

BUILDINGS' ENERGY USAGE WILL BE MANAGED THROUGH BUILDING SITING, ENVELOPE DESIGN, AND BALANCING THE AMOUNT OF GLAZING TO ALLOW NATURAL LIGHT AND VIEWS. THE PATIENT ROOMS IN THE HOSPITAL TOWERS ARE ORIENTED TO THE NORTH AND SOUTH RESULTING IN MINIMAL SOLAR GAINS FROM THE NORTH AND ENABLING EFFECTIVE CONTROL OF THE SOLAR HEAT GAIN FROM THE SOUTH. THE SCHAR CANCER CENTER AND THE SPECIALTY CARE CENTER ARE AGAIN ORIENTED TO THE NORTH AND SOUTH RESULTING IN MINIMAL SOLAR GAINS FROM THE NORTH AND ENABLING EFFECTIVE CONTROL OF THE SOLAR HEAT GAIN FROM THE SOUTH. SOLAR RADIATION AND DAYLIGHT ANALYSES ARE BEING PERFORMED FOR ALL BUILDINGS TO EFFECTIVELY PROVIDE USEFUL DAYLIGHT WHILE REDUCING THE SOLAR HEAT GAINS.

ONSITE RENEWABLE ENERGY PRODUCTION IS NOT VIABLE DUE TO THE LIMITED SITE AREA AND THE INABILITY TO SATISFY THE LOADS OF THE HOSPITAL, CANCER CENTER AND SPECIALTY CARE CENTER. AS AN ALTERNATIVE, INOVA IS PROPOSING TO PURCHASE RENEWABLE OFF-SITE POWER THROUGH DOMINION'S RENEWABLE POWER PROGRAM WITH A GOAL TO ACHIEVE A 50% REDUCTION IN EMISSIONS BY 2030.

INOVA WILL BE ENGAGING BUILDING SYSTEMS AND BUILDING ENVELOPE COMMISSIONING AGENTS, AND IT IS ANTICIPATED THAT CREDITS FOR ENHANCED COMMISSIONING WILL BE ACHIEVED AS INDICATED IN THE SCORECARD.

INDOOR WATER USE REDUCTION TARGETS WILL BE ACHIEVED WITH USING LOW-FLOW FAUCETS AND FIXTURES. DUE TO THE HEALTHCARE PROGRAM NEEDS, IT IS ANTICIPATED THAT MOST TOILET ROOMS IN THE THREE BUILDINGS WILL BE SINGLE OCCUPANCY WITH WATER CLOSETS AND LAVATORIES. PUBLIC RESTROOMS WITH URINALS WILL ONLY BE LOCATED ONLY ON THE GROUND FLOOR, LIMITING OVERALL WATER USE REDUCTION.

INDOOR ENVIRONMENTAL QUALITY STRATEGIES WILL BE UTILIZED AS INDICATED IN THE LEED SCORECARDS, INCLUDING THE SPECIFICATION OF LOW-EMITTING MATERIALS, LEED THERMAL COMFORT CONTROL REQUIREMENT, QUALITY VIEWS, LIGHTING CONTROLS AND ACOUSTICS.

THE NEW GARAGES WILL INCLUDE 2% ELECTRIC CHARGING STATIONS AND ROOFING ON THE BUILDINGS WILL BE HIGH ALBEDO MATERIAL.

SHEET C1.00

COMMONWEALTH OF VIRGINIA
CLAYTON C. TOCK
Lic. No. 036790
11/04/2022
PROFESSIONAL ENGINEER

urban
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FAX 703.378.7888
www.urban-ltd.com

PLAN DATE
11-04-2022
-
-
-

APPROVED
SPECIAL USE PERMIT NO. _____
DEPARTMENT OF PLANNING & ZONING
DIRECTOR DATE
DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____
DIRECTOR DATE
CHAIRMAN, PLANNING COMMISSION DATE
DATE RECORDED _____
INSTRUMENT NO. DEED BOOK NO. PAGE NO.

GENERAL NOTES

1. THE SUBJECT SITE IS LOCATED ON CITY OF ALEXANDRIA ASSESSMENT MAP NO. 047.02-03-10(6001 DUKE ST.) AND IS ZONED CDD #29.
2. OWNER: INDUSTRIAL DEVELOPMENT AUTHORITY OF THE CITY OF ALEXANDRIA
3. OWNER ADDRESS: 625 N WASHINGTON ST, SUITE 400. ALEXANDRIA, VA 22314-1930
4. THE SITE IS LOCATED IN THE HOLMES RUN WATERSHED.
5. CONSTRUCTION PERMITS ARE REQUIRED FOR THIS PROJECT. THE APPROVED SITE PLAN MUST BE ATTACHED TO THE PERMIT APPLICATION THAT FULLY DETAILS THE CONSTRUCTION AS WELL AS LAYOUTS AND SCHEMATICS OF THE MECHANICAL, ELECTRICAL, AND PLUMBING SYSTEMS.
6. ALL PUBLIC AND PRIVATE EASEMENTS OR ALL KNOWN PUBLIC AND PRIVATE EASEMENTS, INCLUDING ALL UTILITY, EGRESS, AND CONSERVATION RESTRICTIONS ARE SHOWN. THE APPLICANT SHALL NOT CONSTRUCT ANY PERMANENT STRUCTURES OVER ANY EXISTING OR PROPOSED PUBLIC EASEMENTS UNLESS OTHERWISE APPROVED BY THE PLANNING COMMISSION AND CITY OF ALEXANDRIA COUNCIL.
7. ALL NEW CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE CITY OF ALEXANDRIA AND TO THE VIRGINIA UNIFORM STATEWIDE BUILDING CODE (USBC).
8. PRIOR TO COMMENCING NEW WORK, THE CONTRACTOR SHALL PROTECT FROM DAMAGE ALL EXISTING ADJACENT AREAS. IF CITY'S EXISTING PUBLIC INFRASTRUCTURE, INCLUDING BUT NOT LIMITED TO, STREETS, ALLEYWAYS, DRIVEWAY APRONS, SANITARY AND STORM SEWERS, STREET LIGHTING, TRAFFIC AND PEDESTRIAN SIGNALS, SIDEWALKS, CURB AND GUTTER, AND STORM WATER DROP INLET STRUCTURES ARE DAMAGED BY THE CONTRACTOR OR BY ACTIVITIES RELATING TO THE SITE CONSTRUCTION THEN THE APPLICANT SHALL REPAIR THE SAME TO THE SATISFACTION OF DIRECTOR, TRANSPORTATION AND ENVIRONMENTAL SERVICES (T&ES). A PRE-CONSTRUCTION WALK/SURVEY OF THE SITE SHALL OCCUR WITH CONSTRUCTION AND INSPECTION STAFF TO DOCUMENT EXISTING CONDITIONS PRIOR TO ANY LAND DISTURBING ACTIVITY.
9. ALL IMPROVEMENTS TO THE CITY'S RIGHT-OF-WAY SUCH AS CURB, GUTTER, SIDEWALK, AND DRIVEWAY APRONS, ETC., ARE DESIGNED PER THE CITY OF ALEXANDRIA STANDARDS AND SPECIFICATIONS.
10. ALL STREET CUT AND PATCH WORK LOCATED IN PUBLIC RIGHT-OF-WAYS, REQUIRED FOR ANY UTILITY INSTALLATION SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE CITY OF ALEXANDRIA STANDARDS AND SPECIFICATIONS AND TO THE SATISFACTION OF THE DIRECTOR OF TRANSPORTATION AND ENVIRONMENTAL SERVICES (T&ES).
11. CONTRACTOR MUST ENSURE THAT THERE IS NO DISTURBANCE ON ADJACENT PROPERTIES WITHOUT RECORDED EASEMENT OR NOTARIZED LETTER OF PERMISSION FROM THE ADJACENT PROPERTY OWNERS.
12. ALL REQUIRED STATE AND FEDERAL PERMITS, WHICH COULD INCLUDE PERMITS FROM THE VIRGINIA DEPARTMENT OF CONSERVATION AND RECREATION (VDCR), VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY (VDEQ), VIRGINIA DEPARTMENT OF HISTORIC RESOURCES (VDHR), UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (USEPA), ARMY CORPS OF ENGINEERS AND VIRGINIA MARINE RESOURCES, MUST BE IN PLACE FOR ALL PROJECT CONSTRUCTION AND MITIGATION WORK PRIOR TO RELEASE OF THE FINAL SITE PLAN. THIS INCLUDES THE STATE REQUIREMENT FOR A VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) GENERAL PERMIT FOR DISCHARGES OF STORMWATER FROM CONSTRUCTION ACTIVITIES FOR LAND DISTURBING ACTIVITIES GREATER THAN 2,500. INFORMATION REGARDING THE VSMP GENERAL PERMIT CAN BE FOUND ONLINE AT: http://www.dcr.virginia.gov/soil_and_water/vsmp.shtml.
13. PERMITS FROM THE CITY OF ALEXANDRIA OFFICE OF ENVIRONMENTAL QUALITY (OEQ), TRANSPORTATION AND ENVIRONMENTAL SERVICES (T&ES), AND BUILDING AND FIRE CODE ADMINISTRATION SHALL BE OBTAINED BY THE APPLICANT, AS REQUIRED AND DOCUMENTED HEREIN. THE CONTRACTOR CAN CONTACT ALEXANDRIA FIRE AND CODE ADMINISTRATION DEPARTMENT AT (703) 838-4644 OR (703) 746-4200 FOR ANY QUESTIONS OR ADDITIONAL INFORMATION.
14. ANY WORK IN THE PUBLIC RIGHT OF WAY SHALL REQUIRE A SEPARATE PERMIT FROM THE DIRECTOR, TRANSPORTATION AND ENVIRONMENTAL SERVICES. THE CONTRACTOR CAN CONTACT THE DEPARTMENT OF TRANSPORTATION AND ENVIRONMENTAL SERVICES AT (703) 746-4035 FOR ANY QUESTIONS OR ADDITIONAL INFORMATION.
15. THE PROPERTY ADDRESS MUST BE CLEARLY MARKED IN THE FRONT AND BACK OF THE PROPOSED DEVELOPMENT SITE DURING CONSTRUCTION FOR EMERGENCY RESPONSE PURPOSES IN CONTRASTING COLORS FOR EASY IDENTIFICATION.
16. THE APPLICANT SHALL CONTACT THE CRIME PREVENTION UNIT OF THE ALEXANDRIA POLICE DEPARTMENT AT 703-746-1920 REGARDING SECURITY HARDWARE FOR NEW CONSTRUCTION. THIS SHALL BE COMPLETED PRIOR TO ISSUANCE OF BUILDING PERMIT.
17. THE CONTRACTOR MUST ENSURE THAT POSITIVE DRAINAGE OCCURS ON SITE TO PREVENT PONDING OR DRAINAGE PROBLEMS ON ADJACENT PROPERTIES.
18. A SEPARATE DESIGN IS REQUIRED FOR ALL WALLS 24" AND OVER IN HEIGHT FROM THE GRADE AND SUBJECT TO SEPARATE PERMITS TO BE OBTAINED BY THE OWNERS. GEOTECHNICAL AND STRUCTURAL DESIGN IS TO BE COMPLETED BY OTHERS. THIS FINAL SITE PLAN SHOWS LOCATION, PROPOSED GRADING, AND DESIGN OF ALL THE WALLS.
19. ALL SANITARY LATERALS AND/OR SEWERS NOT SHOWN IN THE EASEMENTS SHALL BE OWNED AND MAINTAINED PRIVATELY.
20. ALL STORM DRAINS NOT SHOWN WITHIN AN EASEMENT OR IN A PUBLIC RIGHT-OF-WAY SHALL BE OWNED AND MAINTAINED PRIVATELY.
21. ALL WATER FACILITY CONSTRUCTIONS SHALL CONFORM TO VIRGINIA AMERICAN WATER (VAW) STANDARDS AND SPECIFICATIONS. NO WORK CAN BE COMPLETED ON EXISTING AND PROPOSED WATER FACILITIES UNTIL ALL EASEMENTS AND AGREEMENTS WITH VAW ARE FINALIZED, EXECUTED AND RECORDED. DEVELOPER OR CONTRACTOR SHALL CONTACT VAW AT 703-706-3889 TO OBTAIN AN APPROVED PROPOSAL AND PAY ALL REQUIRED FEES, PRIOR TO THE START OF CONSTRUCTION, DEMOLITION AND INSPECTION OF WATER FACILITIES, INCLUDING, BUT NOT LIMITED TO, WATER MAINS, FIRE HYDRANTS, DOMESTIC AND FIRE SERVICE LINES. ALL THE PROPOSED WET TAPS ON AN EXISTING WATER MAIN SHALL BE CONSTRUCTED BY VAW.
22. PRIOR TO THE RELEASE OF THE FINAL SITE PLAN, A TRAFFIC CONTROL PLAN FOR CONSTRUCTION DETAILING PROPOSED CONTROLS TO TRAFFIC MOVEMENT, LANE CLOSURES, CONSTRUCTION ENTRANCES, HAUL ROUTES, AND STORAGE AND STAGING SHALL BE PROVIDED FOR INFORMATION PURPOSES; HOWEVER, AN AMENDED TRAFFIC CONTROL PLAN, IF REQUIRED BY THE DIRECTOR OF TRANSPORTATION AND ENVIRONMENTAL SERVICES SHALL BE SUBMITTED TO THE DIRECTOR OF TRANSPORTATION AND ENVIRONMENTAL SERVICES ALONG WITH THE BUILDING PERMIT APPLICATION. THE FINAL SITE PLAN SHALL INCLUDE A STATEMENT "FOR INFORMATION ONLY" ON THE TRAFFIC CONTROL PLAN SHEETS.
23. THIS SITE IS NOT LOCATED WITHIN A COMBINED SEWER AREA.

EXISTING CONDITIONS SURVEY NOTES

1. HORIZONTAL DATUM* NORTH AMERICAN DATUM OF 1983, NAD83
   VERTICAL DATUM* NORTH AMERICAN VERTICAL DATUM OF 1988, NAVD88*
2. UTILITY INFORMATION, AS SHOWN ON THIS PLAN, IS TAKEN FROM THE RECORDS AND/OR FIELD SURVEY COMPLETED BY URBAN LTD., DATED 05/10/2012; AND CANNOT BE GUARANTEED. FOR EXACT LOCATIONS OF EXISTING UNDERGROUND UTILITIES, NOTIFY "MISS UTILITY" AT 1-800-257-7777 AND 811 72 HOURS BEFORE THE START OF ANY EXCAVATION OR CONSTRUCTION. THE CONSTRUCTION WORKERS AND CONTRACTOR(S) ARE ENCOURAGED TO VISIT DOMINION VIRGINIA POWER WEB SITE AT WWW.DOM.COM (KEYWORD SAFETY) FOR ADDITIONAL SAFETY INSTRUCTIONS.
3. LOCATION AND DEPTH OF ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED BY CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR/ENGINEER SHOULD DIG TEST PITS BY HAND AT ALL UTILITY CROSSINGS TO VERIFY EXACT LOCATION.
4. THE BOUNDARY INFORMATION FOR THE SUBJECT SITE IS BASED ON A CURRENT FIELD SURVEY PREPARED BY URBAN LTD., DATED 02/01/2012 IN ACCORDANCE WITH THE REQUIREMENTS OF VIRGINIA ASSOCIATION OF LAND SURVEYORS.

   * PER MEMORANDUM TO INDUSTRY, JULY 20, 2005; THE PLAN SHALL BE PREPARED USING VIRGINIA STATE PLANE (NORTHZONE) COORDINATES BASED ON NAD83 AND NAVD88; HOWEVER, IF THE CURRENT DRAWINGS ARE PREPARED USING NORTH AMERICAN DATUM OF 1927 (NAD27) AND NORTHGEODETIC VERTICAL DATUM OF 1929 (NGVD29) THEN THE AS-BUILT DRAWINGS SHALL PROVIDE A CONVERSION TABLE OF SANITARY AND STORM SEWER DATA IN THE NAD83 AND NAVD88 DATUMS.

ENVIRONMENTAL SITE ASSESSMENT

1. THE CITY OF ALEXANDRIA DEPARTMENT OF TRANSPORTATION AND ENVIRONMENTAL SERVICES, OFFICE OF ENVIRONMENTAL QUALITY MUST BE NOTIFIED IF UNUSUAL OR UNANTICIPATED CONTAMINATION OR UNDERGROUND STORAGE TANKS, DRUMS, AND CONTAINERS ARE ENCOUNTERED AT THE SITE. IF THERE IS ANY DOUBT ABOUT PUBLIC SAFETY OR A RELEASE TO THE ENVIRONMENT, THE ALEXANDRIA FIRE DEPARTMENT MUST BE CONTACTED IMMEDIATELY BY CALLING 911. THE TANK OR CONTAINER'S REMOVAL, ITS CONTENTS, ANY SOIL CONTAMINATION AND RELEASES TO THE ENVIRONMENT WILL BE HANDLED IN ACCORDANCE WITH FEDERAL, STATE, AND CITY REGULATIONS.
2. ALL WELLS TO BE DEMOLISHED IN THIS PROJECT, INCLUDING MONITORING WELLS MUST BE CLOSED IN ACCORDANCE WITH VIRGINIA STATE WATER CONTROL BOARD (VSWCB) REQUIREMENTS. CONTACT ENVIRONMENTAL HEALTH SPECIALIST AND COORDINATE WITH THE ALEXANDRIA HEALTH DEPARTMENT AT 703-746-4996.
3. UNLESS APPROVED BY THE DIRECTOR OF TRANSPORTATION & ENVIRONMENTAL SERVICES (T&ES) ALL CONSTRUCTION ACTIVITIES MUST COMPLY WITH THE ALEXANDRIA NOISE CONTROL CODE TITLE 11, CHAPTER 5, WHICH PERMITS CONSTRUCTION ACTIVITIES TO OCCUR
   BETWEEN THE FOLLOWING HOURS:
   MONDAY THROUGH FRIDAY FROM 7 AM TO 6 PM AND
   SATURDAYS FROM 9 AM TO 6 PM.
   NO CONSTRUCTION ACTIVITIES ARE PERMITTED ON SUNDAYS.
   PILE DRIVING IS FURTHER RESTRICTED TO THE FOLLOWING HOURS:
   MONDAY THROUGH FRIDAY FROM 9 AM TO 6 PM AND
   SATURDAYS FROM 10 AM TO 4 PM.

SANITARY FLOW COMPUTATIONS

THE TOTAL ESTIMATED FLOW EXCEEDS 10,000 GPD AND IS THEREFORE SUBJECT TO MEMORANDUM TO INDUSTRY NO. 06-14, WHICH STATES THAT AT THE TIME OF THE FINAL SITE PLAN,

1. THE APPLICANT SHALL PROVIDE ADEQUATE SANITARY SEWER OUTFALL ANALYSIS, AS GENERALLY DESCRIBED BELOW, SUFFICIENT TO DETERMINE EXISTING AND FUTURE FLOWS IN THE CITY-OWNED SEWERS THAT ARE USED BY THE DEVELOPMENT/REDEVELOPMENT PROJECT. THE SANITARY SEWER ADEQUATE OUTFALL ANALYSIS SHALL BE COMPLETED UP TO THE TRUNK SEWER DOWNSTREAM WITH A MINIMUM DIAMETER OF 24" OR TO A POINT AS DIRECTED BY T&ES STAFF.
2. THE APPLICANT SHALL PROVIDE AN ESTIMATE OF THE AVERAGE DAY AND PEAK WASTEWATER FLOW DISCHARGED UPSTREAM AND DOWNSTREAM OF THE DEVELOPMENT SITE UNDER EXISTING CONDITIONS AND THE CONTRIBUTION OF SANITARY FLOW FROM THE PROPOSED DEVELOPMENT SITE TO THE TRUNK SEWER USING THE FACTORS DESCRIBED BELOW:
   A. AVERAGE DESIGN FLOWS:
      I. SINGLE FAMILY HOME/TOWNHOUSE 350 GPD/UNIT
      II. MULTI-FAMILY (CONDO, APARTMENT) 300 GPD/UNIT
      III. OFFICE/RETAIL 200 GPD/1000 S.F.
      IV. HOTEL 130 GPD/ROOM
   B. THE SANITARY SEWERS SHALL BE DESIGNED FOR PEAK FLOW USING A PEAKING FACTOR OF 4 APPLIED TO THE AVERAGE FLOW.
   C. AT THE DISCRETION OF T&ES STAFF, EXISTING CONDITIONS PEAK FLOWS, BASED ON LONG-TERM MONITORING AND/OR SEWER MODELING, MAY BE AVAILABLE TO THE APPLICANT FOR USE IN DETERMINING SANITARY SEWER CAPACITY.
   D. SHORT-TERM TEMPORARY FLOW MONITORING OR WATER METER DATA MAY NOT BE USED IN LIEU OF COMPUTING EXISTING FLOWS. LONG-TERM MONITORING MAY BE USED SUBJECT TO THE APPROVAL OF THE DIRECTOR OF T&ES.
3. IN LIEU OF THE ESTIMATION OF THE AVERAGE DAY AND PEAK HOUR WASTEWATER FLOW, THE DIRECTOR OF T&ES AT HIS DISCRETION MAY REQUEST THE APPLICANT TO MEASURE THE SANITARY FLOW UPSTREAM AND DOWNSTREAM OF THE PROPOSED DEVELOPMENT SITE TO DETERMINE THE CURRENT SANITARY FLOW DISCHARGED INTO THE TRUNK SEWER UPSTREAM OF THE DEVELOPMENT SITE AND THE CURRENT CONTRIBUTION OF THE SANITARY FLOW TO THE TRUNK SEWER FROM THE DEVELOPMENT SITE UNDER EXISTING CONDITIONS.
4. THE APPLICANT SHALL ESTIMATE ADDITIONAL AVERAGE DAY AND PEAK HOUR WASTEWATER FLOW TO BE DISCHARGED INTO THE TRUNK SEWER FROM THE PROPOSED DEVELOPMENT SITE UNDER PROPOSED CONDITIONS USING THE FACTORS DESCRIBED ABOVE.
5. THE SANITARY SEWER ADEQUATE OUTFALL ANALYSIS SHALL ACCOUNT FOR THE EXISTING AND FUTURE NEEDS.
6. THE CITY OF ALEXANDRIA, AT ITS DISCRETION, WILL PROVIDE THE APPLICANT WITH ANY READILY AVAILABLE DATA TO ASSIST IN COMPLETION OF THE ADEQUATE OUTFALL ANALYSIS. THE ADDITIONAL PARAMETERS REQUIRED TO COMPLETE THE ANALYSIS SHALL BE FIELD MEASURED (I.E., LENGTH, PIPE DIAMETER, MATERIAL OF CONSTRUCTION, AND SLOPE, ETC.) AND/OR ESTIMATED (I.E., MANNING'S ROUGHNESS COEFFICIENT) BY THE APPLICANT. THE APPLICANT SHALL USE THE CRITERIA ESTABLISHED BY THE ENGINEERS AND SURVEYORS (ESI) INSTITUTE, AS SHOWN ON THE ESI CHECK LIST, WHERE APPLICABLE.
7. THE APPLICANT SHALL PROVIDE ALL THE MEASURED AND/OR ESTIMATED DATA AND CALCULATIONS ON THE ADEQUATE SANITARY SEWER OUTFALL ANALYSIS ON THE PLANS FOR REVIEW BY THE CITY STAFF.
8. THE INCREASED PEAK FLOW WILL BE PLACED IN THE CITY OF ALEXANDRIA WASTEWATER FLOW CAPACITY REGISTRY TO DETERMINE THAT THE CITY HAS SUFFICIENT TREATMENT CAPACITY AVAILABLE IN THE ALEXANDRIA SANITATION AUTHORITY (ASA) ADVANCED WASTEWATER TREATMENT PLANT (A WWTP) AND IN VARIOUS INTERCEPTOR SEWERS IN THE CITY OF ALEXANDRIA.
9. SANITARY SEWER SYSTEMS THAT SERVE OVER 400 PEOPLE REQUIRE THE APPROVAL OF THE VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY (VDEQ). THEREFORE, THE APPLICANT SHALL COMPLY WITH ALL THE REGULATORY REQUIREMENTS OF THE STATE OF VIRGINIA.
10. NO FOUNDATION DRAIN, BASEMENT DRAIN, OR STAIRWELL BASEMENT ACCESS DRAIN SHALL BE CONNECTED TO THE CITY OR ASA SANITARY SEWER.
11. CONTRACTOR SHALL ENSURE ALL DISCHARGES ARE IN ACCORDANCE WITH CITY OF ALEXANDRIA CODE TITLE 5, CHAPTER 6, ARTICLE B.
12. DEWATERING, AND OTHER CONSTRUCTION RELATED DISCHARGE LIMITS TO THE SEWER SYSTEM ARE REGULATED BY ALEX RENEW PRETREATMENT. CONTRACTOR IS REQUIRED TO CONTACT ALEX RENEW'S PRETREATMENT COORDINATOR AT 703-721-3500.

*SEE SHEETS C23.00-24.00 FOR ADEQUATE OUTFALL ANALYSIS AMD SANITARY FLOW COMPUTATIONS.

DEMOLITION

1. A SEPARATE PERMIT IS REQUIRED FOR DEMOLITION; HOWEVER, NO DEMOLITION SHALL BEGIN UNTIL ALL EROSION AND SEDIMENT AND TREE PROTECTION CONTROLS ARE IN PLACE AND ARE APPROVED BY AN EROSION AND SEDIMENT CONTROL INSPECTOR OF THE DEPARTMENT OF TRANSPORTATION AND ENVIRONMENTAL SERVICES.
2. ALL WORK SHALL BE PERFORMED IN STRICT COMPLIANCE WITH THE MOST CURRENT APPLICABLE FEDERAL, STATE , AND LOCAL LAWS AND REGULATIONS, INCLUDING BUT NOT LIMITED, TO ENVIRONMENTAL PROTECTION AGENCY (EPA), OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), VIRGINIA OCCUPATIONAL AND SAFETY HEALTH COMPLIANCE PROGRAM (VOSH ENFORCEMENT), VIRGINIA OVERHEAD HIGH VOLTAGE LINE SAFETY ACT, NATIONAL EMISSIONS STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAPS), AND NATIONAL INSTITUTE OF OCCUPATIONAL SAFETY AND HEALTH (NIOSH).
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF WORK WITH REPRESENTATIVE UTILITY COMPANIES AND FOR THE IMPLEMENTATION OF REQUIRED UTILITY-RELATED WORK.
4. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE UPON ENCOUNTERING ANY HAZARDOUS MATERIALS DURING DEMOLITION AND/OR CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL DOCUMENT SAME TO THE OWNER'S REPRESENTATIVE AND OBTAIN DIRECTION AS TO THE APPROPRIATE ACTION(S) TO BE TAKEN.
5. DISCONNECTION OF SERVICES AND SYSTEMS SUPPLYING UTILITIES TO BE ABANDONED OR DEMOLISHED SHALL BE COMPLETED PRIOR TO OTHER SITE DEMOLITION IN FULL COMPLIANCE WITH APPLICABLE CODES, REGULATIONS, AND THE REQUIREMENTS OF UTILITY PURVEYORS HAVING JURISDICTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE UTILITY PURVEYORS, PAYMENT OF ASSOCIATED FEES AND PROCUREMENT OF ALL NECESSARY PERMITS.
6. PRIOR TO REMOVAL OF MATERIALS OVER EXISTING UTILITY SYSTEMS, THE CONTRACTOR SHALL DOCUMENT EXISTING CONDITIONS AND, IF AT VARIANCE WITH CONDITIONS AS REPRESENTED ON THE PLANS, NOTIFY THE OWNER'S REPRESENTATIVE AND OBTAIN DIRECTIONS AS TO THE APPROPRIATE ACTION(S) TO BE TAKEN.
7. THE CONTRACTOR SHALL BACKFILL EXCAVATED AREAS WITH APPROVED MATERIALS/CLEAN FILL AS PER THE REQUIREMENTS OF VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT).
8. THE CONTRACTOR SHALL PROTECT AND PREVENT DAMAGE TO EXISTING ON-SITE UTILITY DISTRIBUTION FACILITIES THAT ARE TO REMAIN. ACTIVE UTILITY DISTRIBUTION FACILITIES ENCOUNTERED DURING DEMOLITION AND/OR CONSTRUCTION ACTIVITIES SHALL BE SHUT OFF AT THE SERVICE MAIN WITH THE APPROVAL OF THE OWNER'S REPRESENTATIVE.
9. DURING DEMOLITION AND/OR CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE UPON ENCOUNTERING ANY EXISTING UTILITIES AND/OR UTILITY SYSTEM STRUCTURES NOT SHOWN ON THESE PLANS. THE CONTRACTOR SHALL DOCUMENT THE SAME AND FORWARD THE INFORMATION TO THE RESIDENT ENGINEER/OWNER'S REPRESENTATIVE, AND OBTAIN DIRECTION AS TO THE APPROPRIATE ACTION(S) TO BE TAKEN.
10. THE CONTRACTOR OR APPLICANT SHALL WORK WITH THE CITY STAFF TO REUSE THE EXISTING, LEFTOVER, UNUSED, AND/OR DISCARDED BUILDING MATERIALS AS PART OF THE DEMOLITION PROCESS OR THE CONSTRUCTION DEBRIS MUST BE REMOVED TO AN APPROVED LANDFILL WITH ADEQUATE FREQUENCY IN ACCORDANCE WITH THE VIRGINIA STATE LINER CONTROL ACT.

CEMETERY AND/OR BURIAL GROUNDS

THERE IS NO OBSERVABLE, HISTORICAL, OR ARCHAEOLOGICAL EVIDENCE OF CEMETERIES OR BURIAL GROUNDS ON THIS PROPERTY. FURTHERMORE, IT IS ILLEGAL TO DISTURB HUMAN REMAINS WITHOUT OBTAINING APPROPRIATE LEGAL AUTHORIZATION. IF BURIALS ARE FOUND DURING THE ARCHAELOGICAL INVESTIGATION AND NEED TO BE MOVED PRIOR TO DEVELOPMENT, THE APPLICANT SHALL BE RESPONSIBLE FOR THE ARCHAEOLOGICAL REMOVAL AND FOR OBTAINING THE NECESSARY LEGAL DOCUMENTS, INCLUDING A PERMIT FROM THE VIRGINIA DEPARTMENT OF HISTORIC RESOURCES FOR THE ARCHAELOGICAL REMOVAL OF BURIALS.

RODENT ABATEMENT NOTE

PRIOR TO THE ISSUANCE OF A DEMOLITION PERMIT, A RODENT ABATEMENT PLAN SHALL BE SUBMITTED TO THE CITY OF ALEXANDRIA DEPARTMENT OF CODE ADMINISTRATION THAT WILL OUTLINE WHAT STEPS HAVE AND WILL BE TAKEN TO PREVENT THE SPREAD OF RODENTS FROM THE CONSTRUCTION SITE TO THE SURROUNDING COMMUNITY AND SEWERS. THE CONTRACTOR CAN CONTACT THE ALEXANDRIA DEPARTMENT OF CODE ADMINISTRATION AT 703-746-4200 FOR ANY QUESTIONS OR ADDITIONAL INFORMATION. PLEASE BE ADVISED ONCE ANY DEMOLITION HAS BEEN COMPLETED ANY ABOVE GROUND BAIT BOXES MUST BE RELOCATED TO WITHIN 50 FEET OF A STRUCTURE IN KEEPING WITH EPA REGULATIONS. IF THIS IS NOT POSSIBLE, THEY SHALL BE REMOVED AND REGULAR INSPECTIONS OF THE SITE CONDUCTED BY A VIRGINIA LICENSED PEST EXTERMINATOR TO ENSURE THE SITE REMAINS RODENT FREE.

MARINE CLAY STATEMENT

NO MARINE CLAYS EXISTS ON SITE.

SOLID WASTE MANAGEMENT

1. SINCE THE APPLICANT IS NOT REQUIRED, BY SECTION 5-1-31 OF THE CITY CHARTER AND CODE TITLE 5: TRANSPORTATION AND ENVIRONMENTAL SERVICES, TO USE THE CITY OF ALEXANDRIA'S COLLECTION AND DISPOSAL SERVICES; SOLID WASTE COLLECTION AND DISPOSAL SERVICES SHALL BE PROVIDED BY THE APPLICANT / PRIVATE COLLECTORS AND SHALL BE PASSED ON TO THE NEW OWNER IN CASE OF A SALE OF THE PROPERTY SUBSEQUENT TO THE DEVELOPMENT.

SITE ACCESSIBILITY NOTES

1. ALL BUILDINGS WITHIN THE BOUNDARY OF THIS SITE SHALL HAVE AT LEAST ONE "ACCESSIBLE ROUTE" THAT CONFORMS TO "ADA"-"ACCESSIBLE ROUTE" STANDARDS. THESE STANDARDS INCLUDE, BUT ARE NOT LIMITED TO: MAXIMUM WALK SLOPE=1:20 AND MAXIMUM RAMP SLOPE=1:12. ALL WALKS WILL BE BROOM-FINISHED CONCRETE UNLESS OTHERWISE SPECIFIED ON THESE DRAWINGS AND/OR THE ARCHITECTURAL PLANS.
2. ALL "ACCESSIBLE" PARKING SPACES SHALL BE DESIGNATED WITH APPROPRIATE SIGNAGE.
3. THE PAVEMENT SLOPE WITHIN ACCESSIBLE PARKING SPACES SHALL NOT EXCEED 2% IN ANY DIRECTION.

ARCHAEOLOGY NOTES

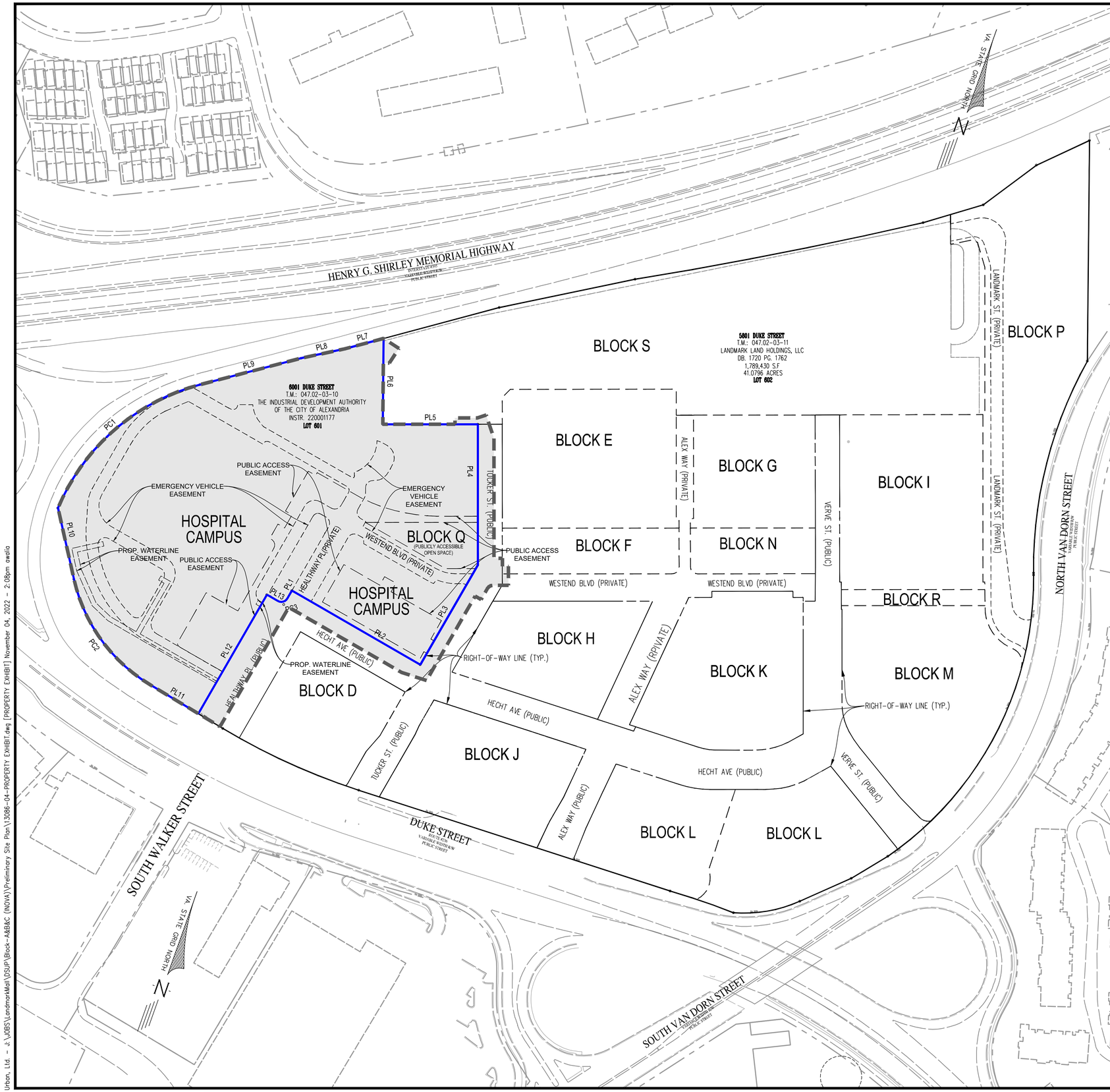
1. ALL REQUIRED ARCHAEOLOGICAL PRESERVATION MEASURES SHALL BE COMPLETED PRIOR TO GROUND-DISTURBING ACTIVITIES (SUCH AS CORING, GRADING, FILLING, VEGETATION REMOVAL, UNDERGROUNDING UTILITIES , PILE DRIVING, LANDSCAPING AND OTHER EXCAVATIONS AS DEFINED IN SECTION 2-151 OF THE ZONING ORDINANCE) OR A RESOURCE MANAGEMENT PLAN MUST BE IN PLACE TO PRESERVE AND/OR RECOVER SIGNIFICANT RESOURCES IN CONCERT WITH CONSTRUCTION ACTIVITIES. TO CONFIRM, CALL ALEXANDRIA ARCHAEOLOGY AT (703) 838-4399.
2. CALL ALEXANDRIA ARCHAEOLOGY (703-746-4399) TWO WEEKS BEFORE THE STARTING DATE OF ANY GROUND DISTURBANCE SO THAT AN INSPECTION OR MONITORING SCHEDULE FOR CITY ARCHAEOLOGISTS CAN BE ARRANGED.
3. THE APPLICANT SHALL CALL ALEXANDRIA ARCHAEOLOGY IMMEDIATELY (703-746-4399) IF ANY BURIED STRUCTURAL REMAINS (WALL FOUNDATIONS, WELLS, PRIVIES, CISTERNS, ECT.) OR CONCENTRATIONS OF ARTIFACTS ARE DISCOVERED DURING DEVELOPMENT. WORK MUST CEASE IN THE AREA OF THE DISCOVERY UNTIL A CITY ARCHAEOLOGIST COMES TO THE SITE AND RECORDS THE FINDS.
4. THE APPLICANT SHALL NOT ALLOW ANY METAL DETECTION AND/OR ARTIFACT COLLECTION TO BE CONDUCTED ON THE PROPERTY, UNLESS AUTHORIZED BY ALEXANDRIA ARCHAEOLOGY. FAILURE TO COMPLY SHALL RESULT IN PROJECT DELAYS.
5. ALL REQUIRED ARCHAEOLOGICAL MEASURES SHALL BE COMPLETED IN COMPLIANCE WITH SECTION 11-411 OF THE ZONING ORDINANCE.

SIGN CONSTRUCTION

A SEPARATE PERMIT IS REQUIRED FOR SIGN CONSTRUCTION.

CONSTRUCTION NOTES

1. THE EXISTING UNDERGROUND UTILITIES SHOWN HEREIN ARE BASED UPON AVAILABLE INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES BEFORE COMMENCING WORK AND FOR ANY DAMAGES WHICH MAY OCCUR BY HIS FAILURE TO LOCATE OR PRESERVE THESE UNDERGROUND UTILITIES. IF DURING CONSTRUCTION OPERATIONS, THE CONTRACTOR SHOULD ENCOUNTER UTILITIES OTHER THAN THOSE SHOWN ON THE PLANS, HE SHALL IMMEDIATELY NOTIFY THE ENGINEER AND TAKE NECESSARY ACTION AND PROPER STEPS TO PROTECT THE FACILITY AND ASSURE THE CONTINUATION OF SERVICE.
2. THE CONTRACTOR SHALL DIG TEST PITS AS REQUIRED FOLLOWING NOTIFICATION AND MARKING OF ALL EXISTING UTILITIES TO VERIFY THE LOCATION AND DEPTH OF EXISTING UTILITIES TEST HOLES TO BE PERFORMED AT LEAST 30 DAYS PRIOR TO START OF CONSTRUCTION. ANY DISCREPANCIES ARE TO BE REPORTED IMMEDIATELY TO THE OWNER AND ENGINEER. REDESIGN AND APPROVAL BY REVIEWING AGENCIES SHALL BE OBTAINED, IF REQUIRED.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE OWNER AND THE ENGINEER OF ANY CHANGES OR CONDITIONS ATTACHED TO PERMITS OBTAINED FROM ANY AUTHORITY ISSUING PERMITS.
4. THE CONTRACTOR SHALL VISIT THE SITE AND SHALL VERIFY EXISTING CONDITIONS PRIOR TO STARTING CONSTRUCTION.
5. THE CONTRACTOR SHALL CLEAR THE SITE OF ALL TREES, BUILDINGS, FOUNDATIONS, ETC., WITHIN THE LIMITS OF CONSTRUCTION UNLESS OTHERWISE SPECIFIED, AND SHALL BE RESPONSIBLE FOR ENSURING THAT EXISTING UTILITIES ARE DISCONNECTED.
6. THE DEVELOPER SHALL PROVIDE OVER-LOT GRADING TO PROVIDE POSITIVE DRAINAGE AND PRECLUDE PONDING OF WATER.
7. ALL AREAS, ON OR OFFSITE, WHICH ARE DISTURBED BY THIS CONSTRUCTION AND WHICH ARE NOT PAVED OR BUILT UPON, SHALL BE ADEQUATELY STABILIZED TO CONTROL EROSION AND SEDIMENTATION. THE MINIMUM ACCEPTABLE STABILIZATION SHALL CONSIST OF PERMANENT GRASS, SEED MIXTURE TO BE AS RECOMMENDED BY THE CITY AGENT. ALL SLOPES 3:1 AND GREATER SHALL BE SODDED AND PEGGED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE CITY OF ALEXANDRIA.
8. EXISTING SEPTIC FIELDS, IF APPLICABLE, SHALL BE ABANDONED IN ACCORDANCE WITH VIRGINIA HEALTH DEPARTMENT STANDARDS AND SPECIFICATIONS.
9. ALL ABOVE GROUND UTILITIES SERVING THE SITE SHALL BE RELOCATED AS REQUIRED BY THE OWNING UTILITY COMPANIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING ALL ARRANGEMENTS AND COORDINATING ALL WORK REQUIRED FOR THE NECESSARY RELOCATIONS.
10. PRIOR TO BEGINNING OF CONSTRUCTION, CONTRACTOR SHALL VERIFY FROM THE ARCHITECTURAL DRAWINGS ALL DIMENSIONS, DETAILS, AND TREATMENTS FOR THE PROPOSED BUILDINGS, WALKWAYS, AND OTHER PROPOSED CONSTRUCTION WHERE INDICATED ON THE PLANS.
11. THE CONTRACTOR IS TO VERIFY INVERT, SIZE, AND LOCATION OF BUILDING UTILITY CONNECTIONS WITH THE MECHANICAL PLANS PRIOR TO PLACEMENT OF UNDERGROUND UTILITIES.
12. EXISTING BUILDINGS, FENCES AND OTHER EXISTING PHYSICAL FEATURES ARE TO BE REMOVED AS REQUIRED BY THE CONSTRUCTION.
13. EXISTING STRUCTURES TO BE PARTIALLY DEMOLISHED SHALL BE REMOVED TO NEAREST JOINT. NEW CONSTRUCTION SHALL BE PROVIDED AS SHOWN AND ANY DAMAGED AREA SHALL BE REPAIRED TO MATCH CONDITIONS EXISTING PRIOR TO CONSTRUCTION OR TO THE SATISFACTION OF DIRECTOR, TRANSPORTATION AND ENVIRONMENTAL SERVICES.
14. ALL PRIVATE BUILDING CONNECTIONS ARE TO BE INSTALLED IN ACCORDANCE WITH THE CURRENT PLUMBING CODE.
15. TO



LINE & CURVE TABLE FOR HOSPITAL CAMPUS

LINE	BEARING	DISTANCE
PL1	N 08°05'18" E	19.02'
PL2	S 81°51'09" E	314.52'
PL3	N 08°08'46" E	244.46'
PL4	N 21°51'27" W	298.33'
PL5	S 68°07'12" W	201.75'
PL6	N 21°20'42" W	182.07'
PL7	S 53°09'18" W	84.27'
PL8	S 56°03'08" W	95.82'
PL9	S 53°28'53" W	221.61'
PL10	S 34°28'32" E	154.97'
PL11	S 80°55'52" E	119.02'
PL12	N 08°08'38" E	291.22'
PL13	S 81°51'22" E	26.50'

CURVE	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH	TANGENT
PC1	413.23'	450.00'	52°36'49"	S 27°10'28" W	398.86'	222.47'
PC2	283.79'	350.00'	46°27'26"	S 57°42'15" E	276.08'	150.22'
PC3	23.56'	15.00'	90°00'00"	N 53°08'38" E	21.21'	15.00'

LOT AREA

HOSPITAL CAMPUS (TOTAL): 10.39 AC. (452,385 SF)

LEGEND

PROPERTY LINE

LIMITS OF DISTURBANCE

NOTES:

1. ALL ADJOINING PROPERTY LINES ARE SHOWN PER SUBDIVISION PLAT FROM SUB#2022-00005 NOT YET RECORDED .

APPROVED

SPECIAL USE PERMIT NO. _____

DEPARTMENT OF PLANNING & ZONING

DIRECTOR _____ DATE _____

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES

SITE PLAN NO. _____

DIRECTOR _____ DATE _____

CHAIRMAN, PLANNING COMMISSION _____ DATE _____

DATE RECORDED _____

INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO. _____

No.	DATE	DESCRIPTION

REVISIONS

PLAN DATE 11-04-2022

Urban, Ltd.
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CHANTILLY, VA. 20151
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Planners•Engineers•Landscape Architects•Land Surveyors

COMMONWEALTH OF VIRGINIA
CLAYTON C. TOCK
Lic. No. 036790
11/04/2022
PROFESSIONAL ENGINEER

PROPERTY EXHIBIT

PRELIMINARY SITE PLAN
INOVA HOSPITAL CAMPUS PHASE I

BUILDINGS A, B & C
CITY OF ALEXANDRIA, VIRGINIA

SCALE: 1"=100' C.I.=N/A DATE: NOV, 2022

SHEET C3.00

FILE No. SP-13086

Urban, Ltd. - J:\JOBS\LandmarkMall\DSUP\Block-A&B&C (INOVA)\Preliminary Site Plan\13086-04-PROPERTY EXHIBIT.dwg [PROPERTY EXHIBIT] November 04, 2022 - 2:08pm awalia



LEGEND

- PROPERTY LINE
- TRANSIT STOP
- MASTER LANDMARK SITE

NOTES:

1. EXISTING CONDITIONS SHOWN HEREON REFLECT THE PROPOSED DESIGN FEATURES FROM INFRASTRUCTURE SITE PLAN (DSP #2021-00012). ANY DEVIATIONS FROM THE INFRASTRUCTURE PLAN MAY REQUIRE FUTURE SITE PLAN AMENDMENTS FOR THIS PLAN (CDSP#2022-00011).
2. ALL ADJOINING PROPERTY LINES ARE SHOWN PER SUBDIVISION PLAT FROM DSP#2021-00012 NOT YET RECORDED .
3. LOTS 702-709 SHOWN HEREON REFLECT 2ND SUBDIVISION OF THE LANDMARK MALL REDEVELOPMENT (SUBDIVISION OF LOT 602) PER THE SUBDIVISION PLAT FROM DSP#2021-00012 NOT YET RECORDED.

APPROVED

SPECIAL USE PERMIT NO. _____

DEPARTMENT OF PLANNING & ZONING

_____ DIRECTOR _____ DATE

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES

SITE PLAN NO. _____

_____ DIRECTOR _____ DATE

_____ CHAIRMAN, PLANNING COMMISSION _____ DATE

DATE RECORDED _____

_____ INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO.

No.	DATE	DESCRIPTION
		REVISIONS

PLAN DATE
11-04-2022

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PROFESSIONAL ENGINEER
11/04/2022

CONTEXTUAL PLAN

PRELIMINARY SITE PLAN
INOVA HOSPITAL CAMPUS PHASE I

CITY OF ALEXANDRIA, VIRGINIA

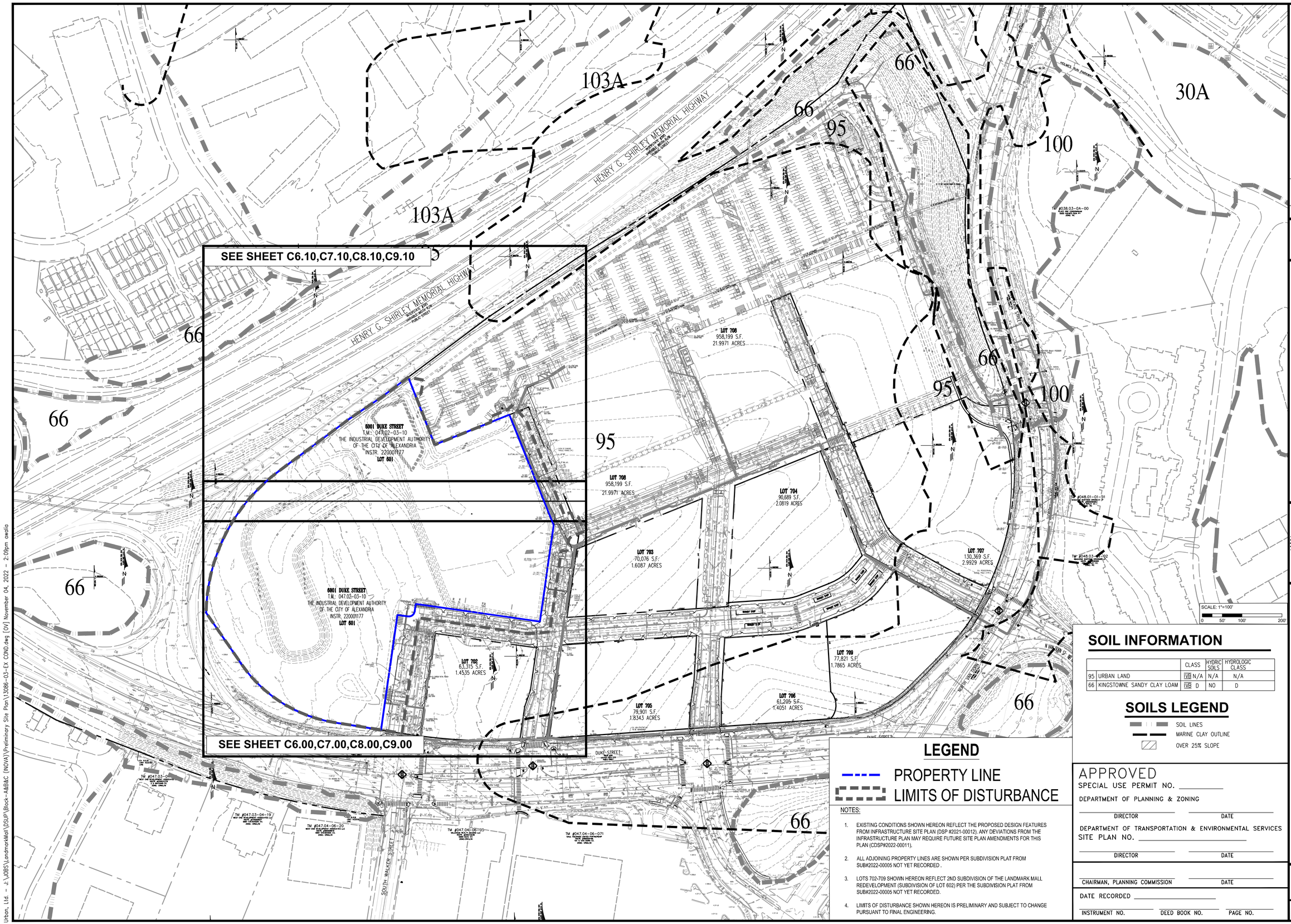
DATE: NOV, 2022

SCALE: 1"=200' C.I.=N/A

SHEET
C4.00

FILE No.
SP-13086

Urban, Ltd. - J:\JOBS\LandmarkMall\DSUP\Block-A&B&C (INOVA)\Preliminary Site Plan\13086-12-CONTEXTUAL PLAN.dwg [CONTEXTUAL PLAN] November 04, 2022 - 2:09pm awalo



SOIL INFORMATION

		CLASS	HYDRIC SOILS	HYDROLOGIC CLASS
95	URBAN LAND	IVB	N/A	N/A
66	KINGSTOWNE SANDY CLAY LOAM	IVB	D	NO	D

SOILS LEGEND

SOIL LINES
MARINE CLAY OUTLINE
OVER 25% SLOPE

LEGEND

PROPERTY LINE
LIMITS OF DISTURBANCE

NOTES:

1. EXISTING CONDITIONS SHOWN HEREON REFLECT THE PROPOSED DESIGN FEATURES FROM INFRASTRUCTURE SITE PLAN (DSP #2021-00012). ANY DEVIATIONS FROM THE INFRASTRUCTURE PLAN MAY REQUIRE FUTURE SITE PLAN AMENDMENTS FOR THIS PLAN (CDSP#2022-00011).
2. ALL ADJOINING PROPERTY LINES ARE SHOWN PER SUBDIVISION PLAT FROM SUB#2022-00005 NOT YET RECORDED .
3. LOTS 702-709 SHOWN HEREON REFLECT 2ND SUBDIVISION OF THE LANDMARK MALL REDEVELOPMENT (SUBDIVISION OF LOT 602) PER THE SUBDIVISION PLAT FROM SUB#2022-00005 NOT YET RECORDED.
4. LIMITS OF DISTURBANCE SHOWN HEREON IS PRELIMINARY AND SUBJECT TO CHANGE PURSUANT TO FINAL ENGINEERING.

APPROVED
SPECIAL USE PERMIT NO. _____

DEPARTMENT OF PLANNING & ZONING

DIRECTOR _____ DATE _____

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____

DIRECTOR _____ DATE _____

CHAIRMAN, PLANNING COMMISSION _____ DATE _____

DATE RECORDED _____

INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO. _____

No.	DATE	DESCRIPTION
		REVISIONS

PLAN DATE
11-04-2022

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PROFESSIONAL ENGINEER
11/04/2022

OVERALL EXISTING CONDITIONS
PRELIMINARY SITE PLAN
INOVA HOSPITAL CAMPUS PHASE I
BUILDINGS A, B & C
CITY OF ALEXANDRIA, VIRGINIA

DATE: NOV, 2022
SCALE: 1"= 100' C.I.= 2'

SHEET
C5.00

FILE No.
SP-13086

J:_JOBS\LandmarkMall\DSUP\Block-A&B&C (INOVA)\Preliminary Site Plan\13086-03-EX COND.dwg [OV] November 04, 2022 - 2:09pm awalia
Urban, Ltd. -

MATCHLINE
SEE SHEET C6.10

6001 DUKE STREET
T.M.: 047.02-03-10
THE INDUSTRIAL DEVELOPMENT AUTHORITY
OF THE CITY OF ALEXANDRIA
INSTR. 220001177
LOT 601

LOT 702
63,315 S.F.
1.4535 ACRES

N 6982761
E 11872439

N 6982640
E 11871674

TUCKER ST (PUBLIC)
HECHT AVE. (PUBLIC)
HEALTHWAY PL (PUBLIC)
DUKE STREET
ROUTE #236
VARIABLE WIDTH R/W
PUBLIC STREET
I-395 RAMP

VA STATE GRID NORTH
NAD 1983 NORTH 1929

SCALE: 1"=30'
0 15' 30' 60'

KEY MAP (NOT TO SCALE)

LEGEND

PROPERTY LINE
LIMITS OF DISTURBANCE

NOTES:

1. EXISTING CONDITIONS SHOWN HEREON REFLECT THE PROPOSED DESIGN FEATURES FROM INFRASTRUCTURE SITE PLAN (DSP #2021-00012). ANY DEVIATIONS FROM THE INFRASTRUCTURE PLAN MAY REQUIRE FUTURE SITE PLAN AMENDMENTS FOR THIS PLAN (CDSP#2022-00011).
2. ALL ADJOINING PROPERTY LINES ARE SHOWN PER SUBDIVISION PLAT FROM SUB#2022-00005 NOT YET RECORDED .
3. LOTS 702-709 SHOWN HEREON REFLECT 2ND SUBDIVISION OF THE LANDMARK MALL REDEVELOPMENT (SUBDIVISION OF LOT 602) PER THE SUBDIVISION PLAT FROM SUB#2022-00005 NOT YET RECORDED.
4. LIMITS OF DISTURBANCE SHOWN HEREON IS PRELIMINARY AND SUBJECT TO CHANGE PURSUANT TO FINAL ENGINEERING.

APPROVED
SPECIAL USE PERMIT NO. _____
DEPARTMENT OF PLANNING & ZONING
DIRECTOR _____ DATE _____
DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____
DIRECTOR _____ DATE _____
CHAIRMAN, PLANNING COMMISSION _____ DATE _____
DATE RECORDED _____
INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO. _____

No.	DATE	DESCRIPTION
		REVISIONS

PLAN DATE
11-04-2022

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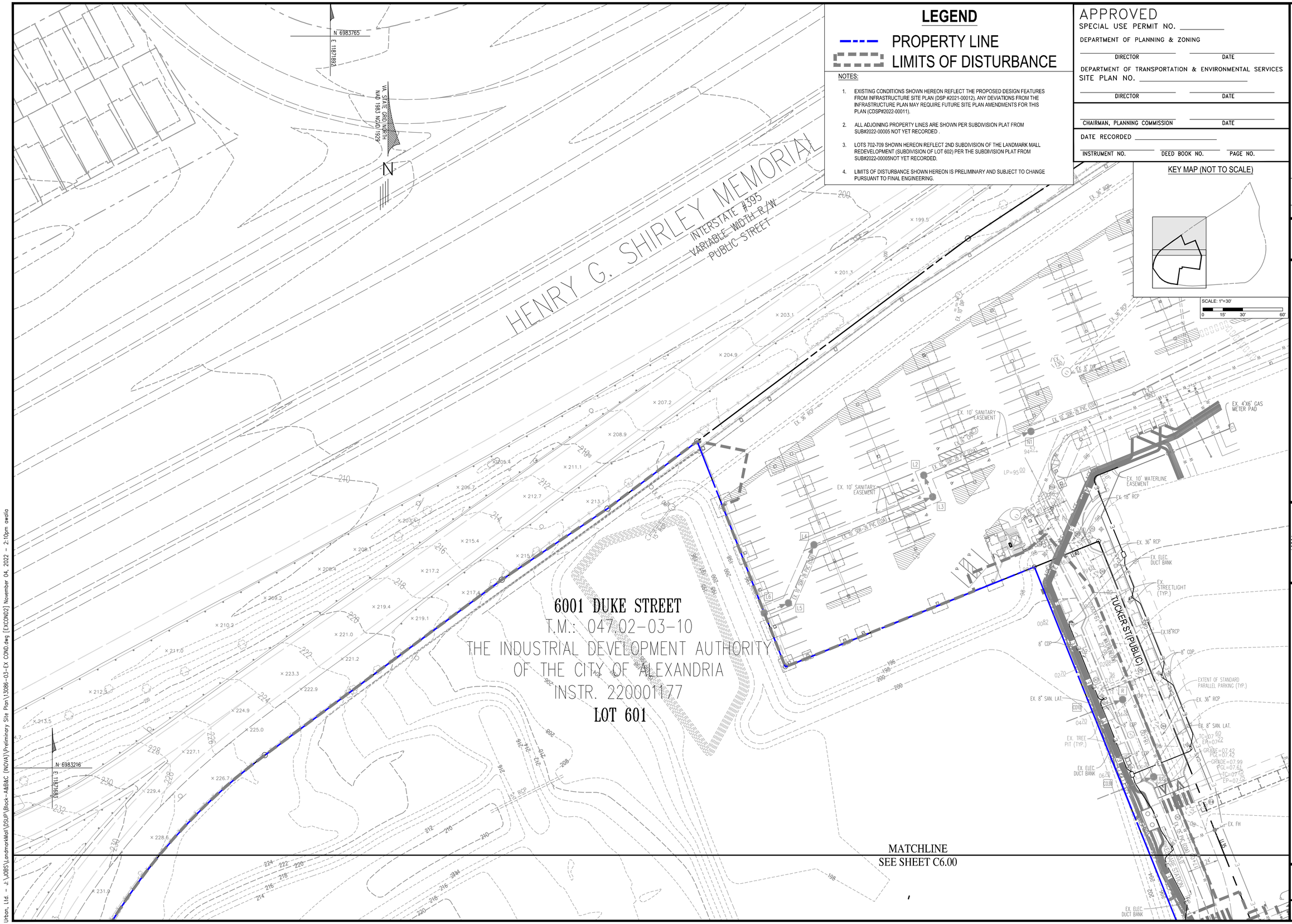
CLAYTON C. YOCK
Lic. No. 038790
PROFESSIONAL ENGINEER
11/04/2022

EXISTING CONDITIONS
PRELIMINARY SITE PLAN
INOVA HOSPITAL CAMPUS PHASE I
BUILDINGS A, B & C
CITY OF ALEXANDRIA, VIRGINIA
DATE: NOV. 2022
SCALE: 1"= 30' C1.= 2'

SHEET
C6.00

FILE No.
SP-13086

Urban, Ltd. – J:\JOBS\LandmarkMall\DSUP\Block-A&B&C (INOVA)\Preliminary Site Plan\13086-03-EX COND.dwg [EXCOND1] November 04, 2022 - 2:09pm awala



LEGEND

PROPERTY LINE

LIMITS OF DISTURBANCE

NOTES:

1. EXISTING CONDITIONS SHOWN HEREON REFLECT THE PROPOSED DESIGN FEATURES FROM INFRASTRUCTURE SITE PLAN (DSP #2021-00012). ANY DEVIATIONS FROM THE INFRASTRUCTURE PLAN MAY REQUIRE FUTURE SITE PLAN AMENDMENTS FOR THIS PLAN (CDSP#2022-00011).
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APPROVED

SPECIAL USE PERMIT NO. _____

DEPARTMENT OF PLANNING & ZONING

_____ DIRECTOR _____ DATE

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES

SITE PLAN NO. _____

_____ DIRECTOR _____ DATE

_____ CHAIRMAN, PLANNING COMMISSION _____ DATE

DATE RECORDED _____

INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO. _____

KEY MAP (NOT TO SCALE)

SCALE: 1"=30'
0 15' 30' 60'

No.	DATE	DESCRIPTION
		REVISIONS

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EXISTING CONDITIONS

PRELIMINARY SITE PLAN
INOVA HOSPITAL CAMPUS PHASE I

BUILDINGS A, B & C
CITY OF ALEXANDRIA, VIRGINIA

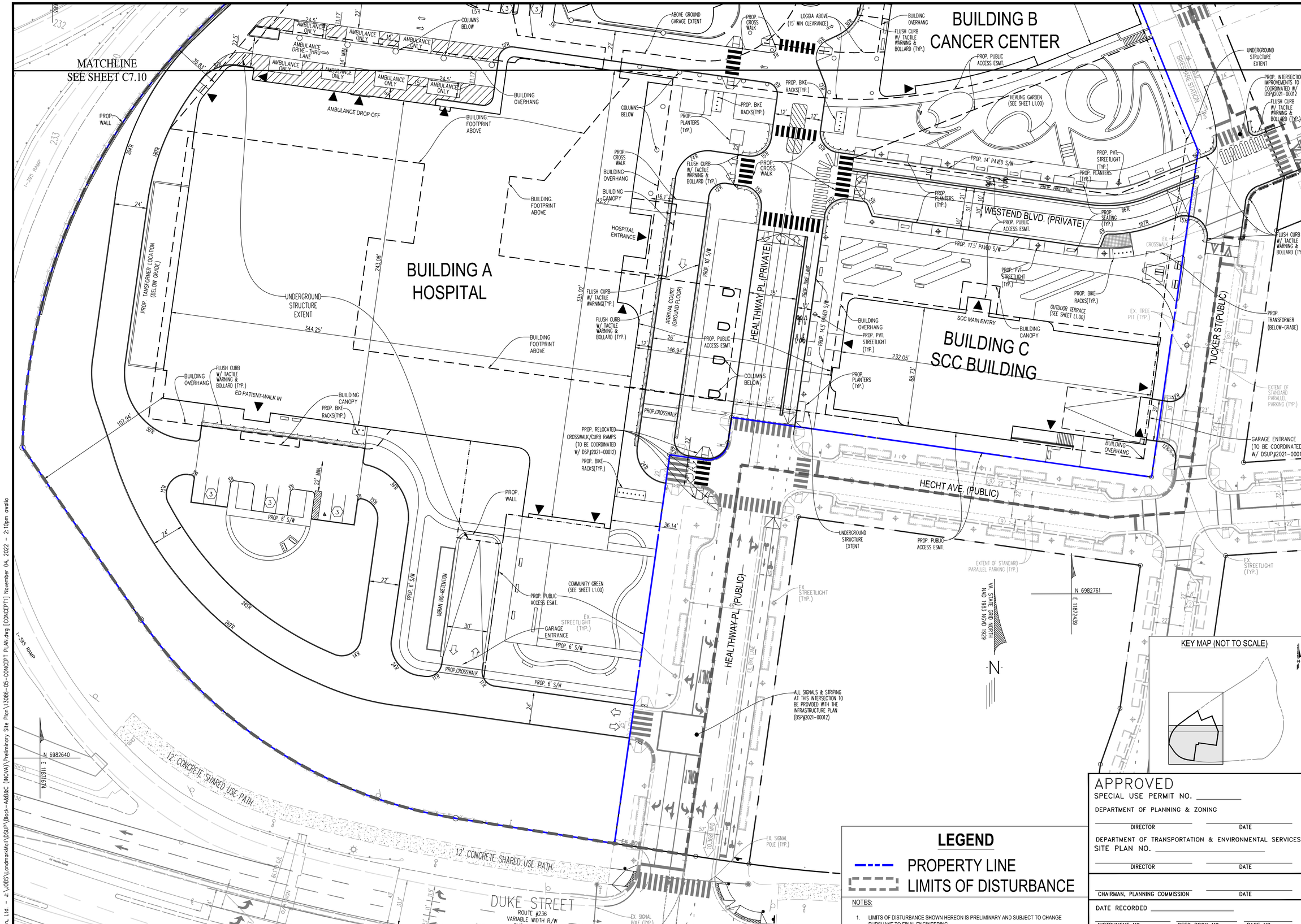
DATE: NOV, 2022

SCALE: 1"= 30' C.I.= 2'

SHEET
C6.10

FILE No.
SP-13086

Urban, Ltd. - J:\JOBS\LandmarkMall\DSUP\Block-A&B&C (INOVA)\Preliminary Site Plan\13086-03-EX COND.dwg [EXCOND2] November 04, 2022 - 2:10pm owolo



KEY MAP (NOT TO SCALE)

LEGEND

PROPERTY LINE

LIMITS OF DISTURBANCE

NOTES:

1. LIMITS OF DISTURBANCE SHOWN HEREON IS PRELIMINARY AND SUBJECT TO CHANGE PURSUANT TO FINAL ENGINEERING.

APPROVED

SPECIAL USE PERMIT NO. _____

DEPARTMENT OF PLANNING & ZONING

DIRECTOR _____ DATE _____

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES

SITE PLAN NO. _____

DIRECTOR _____ DATE _____

CHAIRMAN, PLANNING COMMISSION _____ DATE _____

DATE RECORDED _____

INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO. _____

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CONCEPT PLAN

PRELIMINARY SITE PLAN
INOVA HOSPITAL CAMPUS PHASE I

BUILDINGS A, B & C
CITY OF ALEXANDRIA, VIRGINIA

SCALE: 1"= 30' C.I.= N/A DATE: NOV, 2022

SHEET C7.00

FILE No. SP-13086

Urban, Ltd. - J:\JOBS\LandmarkMall\DSUP\Block-A&B&C (INOVA)\Preliminary Site Plan\13086-05-CONCEPT PLAN.dwg [CONCEPT1] November 04, 2022 - 2:10pm awalia

LEGEND

PROPERTY LINE

LIMITS OF DISTURBANCE

NOTES:

1. LIMITS OF DISTURBANCE SHOWN HEREON IS PRELIMINARY AND SUBJECT TO CHANGE PURSUANT TO FINAL ENGINEERING.

APPROVED

SPECIAL USE PERMIT NO. _____

DEPARTMENT OF PLANNING & ZONING

_____ DIRECTOR _____ DATE

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES

SITE PLAN NO. _____

_____ DIRECTOR _____ DATE

_____ CHAIRMAN, PLANNING COMMISSION _____ DATE

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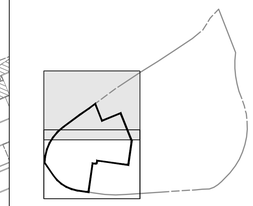
_____ INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO.

KEY MAP (NOT TO SCALE)



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11/04/2022
PROFESSIONAL ENGINEER

CONCEPT PLAN

PRELIMINARY SITE PLAN
INOVA HOSPITAL CAMPUS PHASE I

BUILDINGS A, B & C
CITY OF ALEXANDRIA, VIRGINIA

SCALE: 1"= 30'

DATE: NOV. 2022

C.I.= N/A

SHEET
C7.10

FILE No.
SP-13086

N 6983765
E 1187892

VA. STATE GRID NORTH
NAD 1983 NGVD 1929

N

HENRY G. SHIRLEY MEMORIAL HIGHWAY
INTERSTATE #395
VARIABLE WIDTH R/W
PUBLIC STREET

N 6983216
E 1187883

MATCHLINE
SEE SHEET C7.00

LOADING ENTRANCE AT-GRADE BELOW STRUCTURED PARKING

ABOVE GROUND GARAGE EXTENT

URBAN BIO-RETENTION

PROP. BIKE RACKS(TYP.)

UNDERGROUND STRUCTURE EXTENT

RAMP UP

PROP. OXYGEN TANK LOCATION

PROP. WALL

PROP. FENCE

AMBULANCE PARKING

AMBULANCE ONLY

AMBULANCE DRIVE-THRU LANE

AMBULANCE DROP-OFF

COLUMNS BELOW

BUILDING OVERHANG

BUILDING FOOTPRINT ABOVE

PROP. PLANTERS (TYP.)

PROP. CROSS WALK

LOGGIA ABOVE (15' MIN CLEARANCE)

PROP. PEDESTRIAN BRIDGE CONNECTION (EX. GARAGE TO PROP. GARAGE.)

PROP. GATE

PROP. TRANSFORMER ENCLOSURE (AT-GRADE WITH SCREENING)

UNDERGROUND STRUCTURE EXTENT

BUILDING CANOPY

BUILDING B
CANCER CENTER

CANCER CENTER MAIN ENTRY

FLUSH CURB W/ TACTILE WARNING & BOLLARD (TYP.)

PROP. PUBLIC ACCESS ESMT.

HEALING GARDEN (SEE SHEET L1.00)

TUCKER ST (PUBLIC)

EX. STREETLIGHT (TYP.)

EXTENT OF STANDARD PARALLEL PARKING (TYP.)

EX. TREE PIT (TYP.)

BIKESHARE STATION

PROP. INTERSECTION IMPROVEMENTS TO BE COORDINATED W/ DSP#2021-00012

FLUSH CURB W/ TACTILE WARNING & BOLLARD (TYP.)

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MATCHLINE
SEE SHEET C8.10

BUILDING A
HOSPITAL

BUILDING B
CANCER CENTER

BUILDING C
SCC BUILDING

WESTEND BLVD. (PRIVATE)

HEALTHWAY PL (PRIVATE)

HECHT AVE. (PUBLIC)

TUCKER ST (PUBLIC)

DUKE STREET
ROUTE #236
VARIABLE WIDTH R/W
PUBLIC STREET

12' CONCRETE SHARED USE PATH

AMBULANCE DROP-OFF

AMBULANCE DRIVE-THRU LANE

ED PATIENT-WALK IN

HOSPITAL ENTRANCE

SCC MAIN ENTRY

ARRIVAL COURT (GROUND FLOOR)

GARAGE ENTRANCE

GARAGE ENTRANCE (TO BE COORDINATED W/ DSUP#2021-00012)

PROP. TRANSFORMER LOCATION (BELOW GRADE)

PROP. TRANSFORMER (BELOW-GRADE)

UNDERGROUND STRUCTURE EXTENT

URBAN BIO-RETENTION

ALL SIGNALS & STRIPING AT THIS INTERSECTION TO BE PROVIDED WITH THE INFRASTRUCTURE PLAN (DSP#2021-00012)

N 6982640
E 11819674

N 6982761
E 11872439

VIA STATE CPOS NAD 1983 NOVA

N

KEY MAP (NOT TO SCALE)

LEGEND

PROPERTY LINE

LIMITS OF DISTURBANCE

NOTES:

1. LIMITS OF DISTURBANCE SHOWN HEREON IS PRELIMINARY AND SUBJECT TO CHANGE PURSUANT TO FINAL ENGINEERING.

APPROVED
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DEPARTMENT OF PLANNING & ZONING
DIRECTOR _____ DATE _____
DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____
DIRECTOR _____ DATE _____
CHAIRMAN, PLANNING COMMISSION _____ DATE _____
DATE RECORDED _____
INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO. _____

No.	DATE	DESCRIPTION
		REVISIONS

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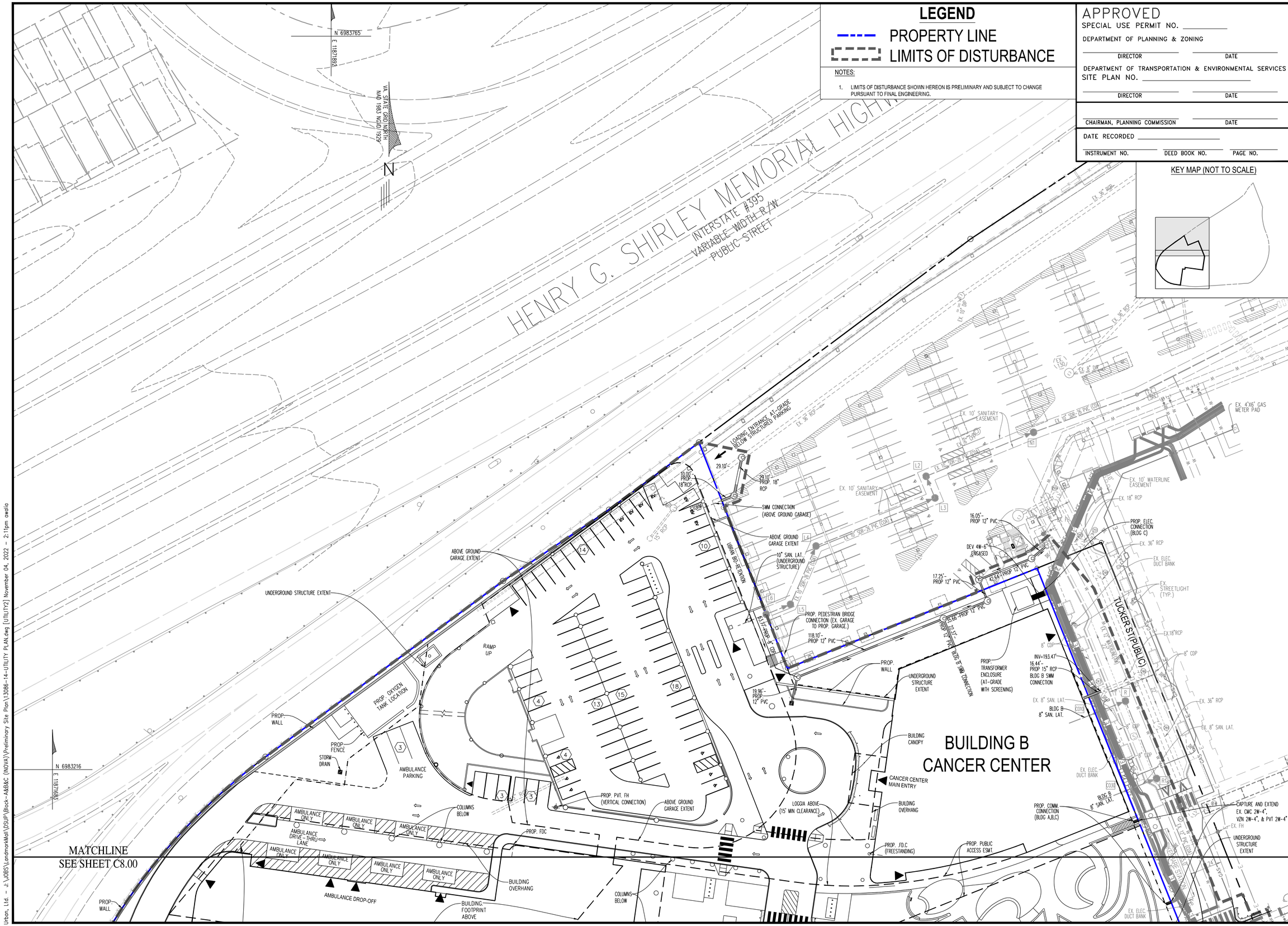
COMMONWEALTH OF VIRGINIA
CLAYTON C. TOCK
Lic. No. 036790
11/04/2022
PROFESSIONAL ENGINEER

UTILITY PLAN
PRELIMINARY SITE PLAN
INOVA HOSPITAL CAMPUS PHASE I
BUILDINGS A, B & C
CITY OF ALEXANDRIA, VIRGINIA
SCALE: 1"= 30' C.I.= N/A DATE: NOV. 2022

SHEET
C8.00

FILE No.
SP-13086

Urban, Ltd. – J:_OBS\LandmarkMall\DSUP\Block-A&B&C (INOVA)\Preliminary Site Plan\13086-14-UTILITY PLAN.dwg [UTILITY1] November 04, 2022 - 2:10pm owalo



LEGEND

PROPERTY LINE

LIMITS OF DISTURBANCE

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DIRECTOR _____ DATE _____

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES

SITE PLAN NO. _____

DIRECTOR _____ DATE _____

CHAIRMAN, PLANNING COMMISSION _____ DATE _____

DATE RECORDED _____

INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO. _____

KEY MAP (NOT TO SCALE)

No.	DATE	DESCRIPTION

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UTILITY PLAN

PRELIMINARY SITE PLAN
INOVA HOSPITAL CAMPUS PHASE I

BUILDINGS A, B & C

CITY OF ALEXANDRIA, VIRGINIA

SCALE: 1"= 30' C.I.= N/A DATE: NOV, 2022

SHEET C8.10

FILE No. SP-13086

Urban, Ltd. - J:\JOBS\LandmarkMall\DSUP\Block-A&B&C (INOVA)\Preliminary Site Plan\13086-14-UTILITY PLAN.dwg [UTILITY2] November 04, 2022 - 2:11pm awalia

MATCHLINE
SEE SHEET C9.10

BUILDING A
HOSPITAL
FFE: 216.50

BUILDING B
CANCER CENTER

BUILDING C
SCC BUILDING
FFE: 214.33

WESTEND BLVD. (PRIVATE)

HEALTHWAY PL. (PRIVATE)

HEALTHWAY PL. (PUBLIC)

TUCKER ST. (PUBLIC)

HECHT AVE. (PUBLIC)

DUKE STREET
ROUTE #236
VARIABLE WIDTH R/W
PUBLIC STREET

ARRIVAL COURT (GROUND FLOOR)

ED PATIENT-WALK IN

AMBULANCE DRIVE-THRU LANE

AMBULANCE DROP-OFF

SCC MAIN ENTRY

GARAGE ENTRANCE

URBAN BIO-RETENTION

ALL SIGNALS & STRIPING AT THIS INTERSECTION TO BE PROVIDED WITH THE INFRASTRUCTURE PLAN (DSP#2021-00012)

GARAGE ENTRANCE (TO BE COORDINATED W/ DSUP#2021-00012)

KEY MAP (NOT TO SCALE)

LEGEND

PROPERTY LINE

LIMITS OF DISTURBANCE

NOTES:

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APPROVED
SPECIAL USE PERMIT NO. _____
DEPARTMENT OF PLANNING & ZONING
DIRECTOR _____ DATE _____
DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____
DIRECTOR _____ DATE _____
CHAIRMAN, PLANNING COMMISSION _____ DATE _____
DATE RECORDED _____
INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO. _____

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		REVISIONS

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11/04/2022
REGISTERED PROFESSIONAL ENGINEER

GRADING PLAN
PRELIMINARY SITE PLAN
INOVA HOSPITAL CAMPUS PHASE I
BUILDINGS A, B & C
CITY OF ALEXANDRIA, VIRGINIA
DATE: NOV, 2022
SCALE: 1" = 30'
C.I.= N/A

SHEET
C9.00

FILE No.
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LEGEND

PROPERTY LINE

LIMITS OF DISTURBANCE

NOTES:

1. LIMITS OF DISTURBANCE SHOWN HEREON IS PRELIMINARY AND SUBJECT TO CHANGE PURSUANT TO FINAL ENGINEERING.

APPROVED

SPECIAL USE PERMIT NO. _____

DEPARTMENT OF PLANNING & ZONING

_____ DIRECTOR _____ DATE

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES

SITE PLAN NO. _____

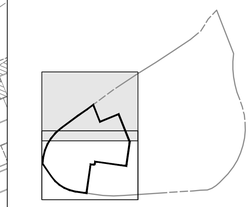
_____ DIRECTOR _____ DATE

_____ CHAIRMAN, PLANNING COMMISSION _____ DATE

DATE RECORDED _____

_____ INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO.

KEY MAP (NOT TO SCALE)



No.	DATE	DESCRIPTION
		REVISIONS

PLAN DATE 11-04-2022

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PROFESSIONAL ENGINEER

GRADING PLAN

PRELIMINARY SITE PLAN
INOVA HOSPITAL CAMPUS PHASE I

BUILDINGS A, B & C
CITY OF ALEXANDRIA, VIRGINIA

DATE: NOV, 2022

SCALE: 1"= 30' C.I.= N/A

SHEET
C9.10

FILE No.
SP-13086

HENRY G. SHIRLEY MEMORIAL HIGHWAY
INTERSTATE #395
VARIABLE WIDTH R/W
PUBLIC STREET

N 6983765
E 1187892

VA. STATE GRID NORTH
NAD 1983 NGVD 1929

N

N 6983216
E 1187843

MATCHLINE
SEE SHEET C9.00

BUILDING B
CANCER CENTER
FFE: 216.50

CANCER CENTER MAIN ENTRY

BUILDING CANOPY

BUILDING OVERHANG

UNDERGROUND STRUCTURE EXTENT

LOADING ENTRANCE AT-GRADE BELOW STRUCTURED PARKING

ABOVE GROUND GARAGE EXTENT

UNDERGROUND STRUCTURE EXTENT

RAMP UP

PROP. OXYGEN TANK LOCATION

PROP. FENCE

PROP. WALL

STORM DRAIN RIM= 15.20

AMBULANCE PARKING

AMBULANCE ONLY

AMBULANCE DRIVE - THRU LANE

AMBULANCE DROP-OFF

COLUMNS BELOW

BUILDING FOOTPRINT ABOVE

BUILDING OVERHANG

LOGGIA ABOVE (15' MIN CLEARANCE)

PROP. 18" RCP

SWM CONNECTION (ABOVE GROUND GARAGE)

ABOVE GROUND GARAGE EXTENT

URBAN BIO-RETENTION

PROP. PEDESTRIAN BRIDGE CONNECTION (EX. GARAGE TO PROP. GARAGE)

PROP. 4" CDP

PROP. 12" PVC

PROP. WALL

UNDERGROUND STRUCTURE EXTENT

PROP 12" PVC BLDG B SWM CONNECTION

PROP 15" RCP BLDG B SWM CONNECTION

INV=193.47

8" CDP

EX. 18" RCP

EX. 36" RCP

TUCKER ST (PUBLIC)

UNDERGROUND STRUCTURE EXTENT

HP GRADE=16.24
PGL=15.86

TW=230.00 BW(W)=210.40

TW=230.00 BW(W)=215.20

TW=230.00 BW(W)= 216.80

TW=230.00 BW(E)= 211.15 BW(W)=218.70

TW=230.00 BW(E)=216.50 BW(W)=222.00

TW=230.00 BW(E)=216.50 BW(W)=223.70

TW=230.00 BW(E)=217.00 BW(W)=226.00

TW=230.00 BW(E)=216.33 BW(W)=227.00

TW=230.00 BW(E)=215.20 BW(W)=228.00

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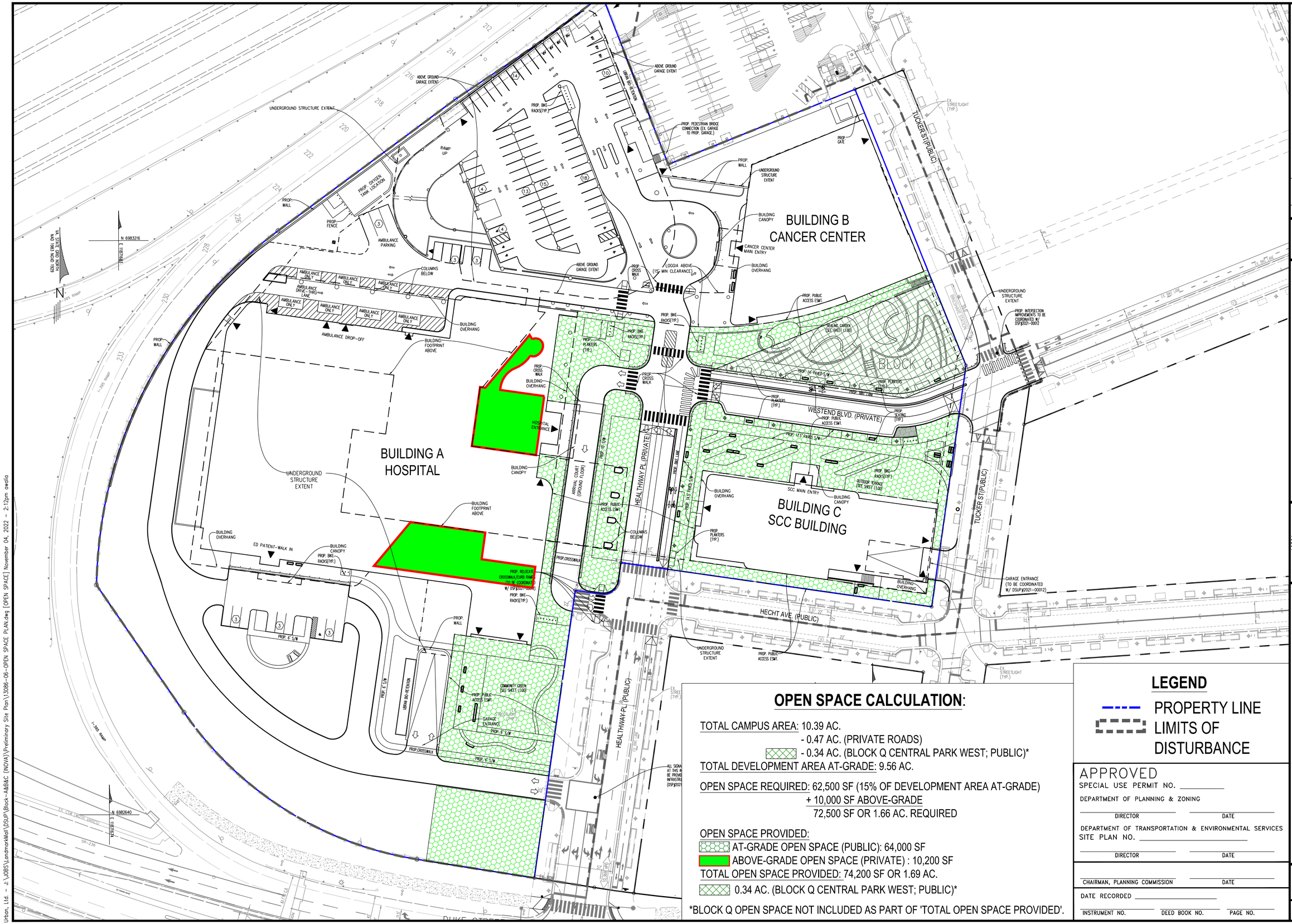

OPEN SPACE CALCULATION:

TOTAL CAMPUS AREA: 10.39 AC.
- 0.47 AC. (PRIVATE ROADS)
- 0.34 AC. (BLOCK Q CENTRAL PARK WEST; PUBLIC)*

TOTAL DEVELOPMENT AREA AT-GRADE: 9.56 AC.

OPEN SPACE REQUIRED: 62,500 SF (15% OF DEVELOPMENT AREA AT-GRADE)
+ 10,000 SF ABOVE-GRADE
72,500 SF OR 1.66 AC. REQUIRED

OPEN SPACE PROVIDED:
AT-GRADE OPEN SPACE (PUBLIC): 64,000 SF
ABOVE-GRADE OPEN SPACE (PRIVATE) : 10,200 SF
TOTAL OPEN SPACE PROVIDED: 74,200 SF OR 1.69 AC.
0.34 AC. (BLOCK Q CENTRAL PARK WEST; PUBLIC)*

*BLOCK Q OPEN SPACE NOT INCLUDED AS PART OF 'TOTAL OPEN SPACE PROVIDED'.

LEGEND

PROPERTY LINE
LIMITS OF DISTURBANCE

APPROVED
SPECIAL USE PERMIT NO. _____
DEPARTMENT OF PLANNING & ZONING
DIRECTOR _____ DATE _____
DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____
DIRECTOR _____ DATE _____
CHAIRMAN, PLANNING COMMISSION _____ DATE _____
DATE RECORDED _____
INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO. _____

No.	DATE	DESCRIPTION
		REVISIONS

PLAN DATE 11-04-2022

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CLAYTON C. TOCK
Lic. No. 038790
PROFESSIONAL ENGINEER
11/04/2022

OPEN SPACE PLAN
PRELIMINARY SITE PLAN
INOVA HOSPITAL CAMPUS PHASE I
BUILDINGS A, B & C
CITY OF ALEXANDRIA, VIRGINIA
DATE: NOV. 2022
SCALE: 1" = 40' C.I.= N/A

SHEET
C10.00

FILE No.
SP-13086

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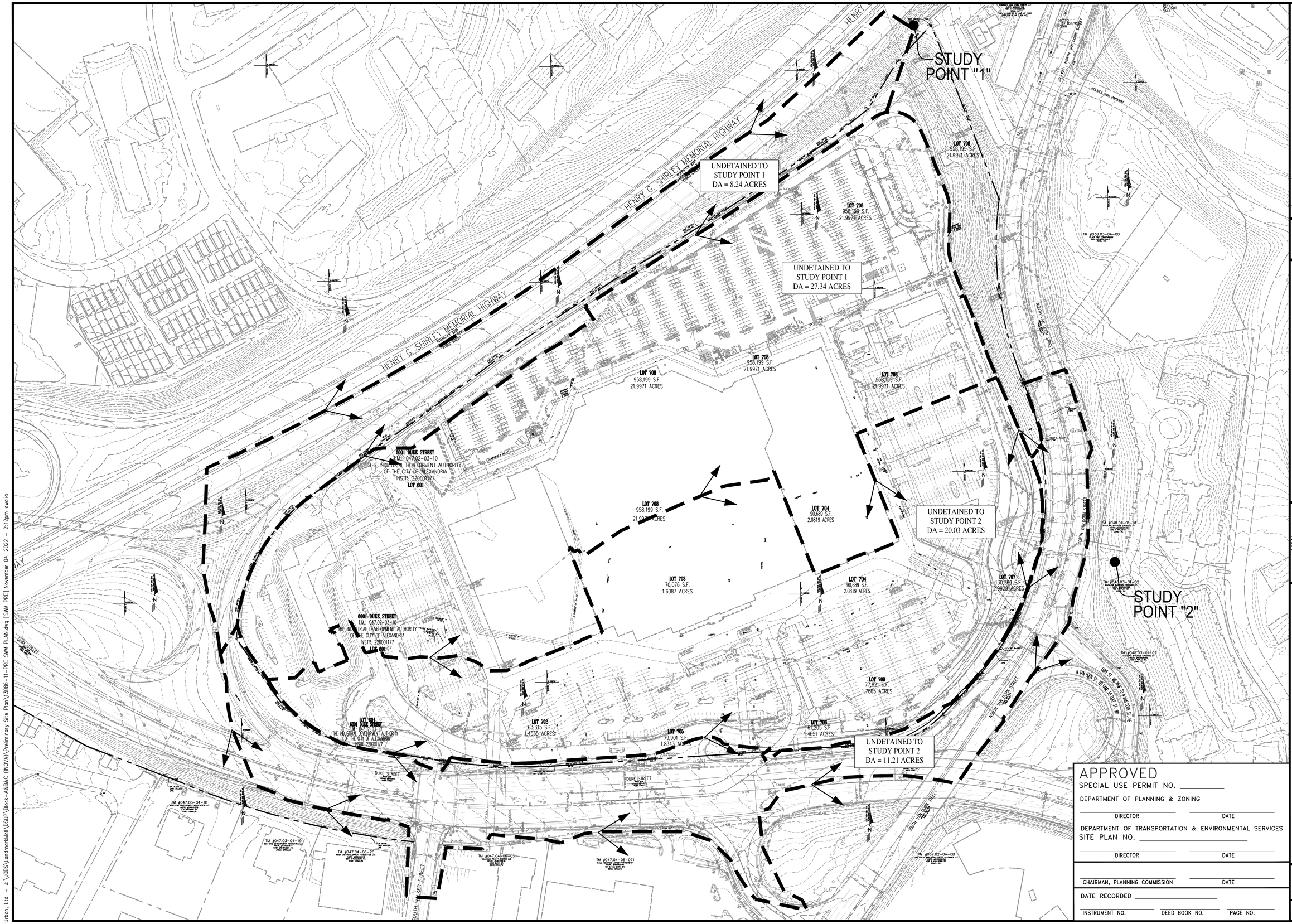

APPROVED

SPECIAL USE PERMIT NO. _____

DEPARTMENT OF PLANNING & ZONING

DIRECTOR _____ DATE _____

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES

SITE PLAN NO. _____

DIRECTOR _____ DATE _____

CHAIRMAN, PLANNING COMMISSION _____ DATE _____

DATE RECORDED _____

INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO. _____

No.	DATE	DESCRIPTION

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COMMONWEALTH OF VIRGINIA
CLAYTON C. TOCK
Lic. No. 036790
09/12/22
PROFESSIONAL ENGINEER

SWM PRE DEVELOPMENT PLAN

DEVELOPMENT CONCEPT II
INOVA HOSPITAL CAMPUS PHASE I

CITY OF ALEXANDRIA, VIRGINIA

SCALE: 1"=100' C.I.= 2' DATE: SEPT. 2022

SHEET C11.00

FILE No. SP-13086

Urban, Ltd. - J:\JOBS\LandmarkMall\DSUP\Block-A&B&C (INOVA)\Preliminary Site Plan\13086-11-PRE SWM PLAN.dwg [SWM PRE] November 04, 2022 - 2:12pm awalia

STUDY POINT "1"

STUDY POINT "2"

VAULT 4

VAULT 3

VAULT 2

HENRY G. SHIRLEY MEMORIAL HIGHWAY

HENRY

LOT 708
958,199 S.F.
21.9971 ACRES

LOT 707
130,369 S.F.
2.9929 ACRES

BLOCK H

BLOCK J

STUDY POINT "1":
ONSITE DA TO VAULT 4
DA = 8.06 AC
CN= 98
TC = 10 MINS

STUDY POINT "1":
BLOK G DA TO VAULT 2
DA = 1.30 AC
CN= 95
TC = 10 MINS

STUDY POINT "1":
PARKS, ROADS, S/W, ETC.
DA TO VAULT 2
DA = 17.46 AC
CN= 95
TC = 10 MINS

OFFSITE UNDETAINED
DRAINAGE AREA
TO STUDY POINT "1"
DA = 6.45AC
CN= 95
TC = 15 MINS

STUDY POINT "1":
BLOCK I DA TO VAULT 2
DA = 2.57 AC
CN= 95
TC = 10 MINS

STUDY POINT "1":
BLOCK E DA TO VAULT 2
DA = 2.30 AC
CN= 95
TC = 10 MINS

STUDY POINT "1":
PORTION OF INOVA DA TO VAULT 2
DA = 3.51 AC
CN= 95
TC = 10 MINS

STUDY POINT "1":
BLOCK K DA TO VAULT 2
DA = 2.53 AC
CN= 95
TC = 10 MINS

STUDY POINT "2":
BLOCK M DA TO VAULT 3
DA = 2.84 AC
CN= 95
TC = 10 MINS

STUDY POINT "1":
BLOCK H DA TO VAULT 2
DA = 1.61 AC
CN= 95
TC = 10 MINS

STUDY POINT "2":
PORTION OF INOVA DA TO VAULT 3
DA = 6.19 AC
CN= 95
TC = 10 MINS

STUDY POINT "2":
BLOCK D DA TO VAULT 3
DA = 1.39 AC
CN= 95
TC = 10 MINS

STUDY POINT "2":
BLOCK J DA TO VAULT 3
DA = 1.82 AC
CN= 95
TC = 10 MINS

STUDY POINT "2":
BLOCK L DA TO VAULT 3
DA = 3.08 AC
CN= 95
TC = 10 MINS

OFFSITE UNDETAINED
DRAINAGE AREA
TO STUDY POINT "2"
DA = 11.21AC
CN= 95
TC = 10 MINS

STUDY POINT "2":
ROADS, S/W, ETC. DA TO
VAULT 3
DA = 5.41 AC
CN= 95
TC = 10 MINS

DUKE STREET

SOUTH WALKER STREET

N VAN DORN ST

SCALE: 1"=100'
0 50' 100' 200'

NOTE:
*ALL STORMWATER BMP FACILITIES SHOWN ON THE PLANS ARE FOR ILLUSTRATIVE PURPOSES ONLY.
**DISCHARGE FROM GARAGE SUMP PUMPS MUST BYPASS BMPS AND DETENTION STRUCTURES.

APPROVED
SPECIAL USE PERMIT NO. _____
DEPARTMENT OF PLANNING & ZONING
DIRECTOR DATE
DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____
DIRECTOR DATE
CHAIRMAN, PLANNING COMMISSION DATE
DATE RECORDED _____
INSTRUMENT NO. DEED BOOK NO. PAGE NO.

No.	DATE	DESCRIPTION
		REVISIONS

PLAN DATE
11-04-2022

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COMMONWEALTH OF VIRGINIA
CLAYTON C. TOCK
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PROFESSIONAL ENGINEER
11/04/2022

SWM POST DEVELOPMENT PLAN
PRELIMINARY SITE PLAN
INOVA HOSPITAL CAMPUS PHASE I
BUILDINGS A, B & C
CITY OF ALEXANDRIA, VIRGINIA
DATE: NOV, 2022
SCALE: 1"=100' C.I.= 2'

SHEET
C12.00

FILE No.
SP-13086

Urban, Ltd. - J:\JOBS\LandmarkMall\DSUP\Block-A&B&C (INOVA)\Preliminary Site Plan\13086-09-POST SWM PLAN.dwg [POST SWM MASTER PLAN] November 04, 2022 - 2:13pm awalla

SWM PRE - Study Point "1"

SWM PRE OFFSITE Undetained Runoff Calculations

Curve Number Calculations

Area (ac)	CN	Description
4.880	98	Paved parking, HSG D
3.360	80	>75% Grass cover, Good, HSG D
8.240	91	Weighted Average
3.360		40.78% Pervious Area
4.880		59.22% Impervious Area

Time of Concentration Calculations

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					Direct Entry,

1 Year Flow Calculations

Runoff = 16.03 cfs@ 12.15 hrs, Volume= 50,067 cf, Depth> 1.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 1-yr Rainfall=2.70"

2 Year Flow Calculations

Runoff = 20.03 cfs@ 12.15 hrs, Volume= 63,254 cf, Depth> 2.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 2-yr Rainfall=3.20"

10 Year Flow Calculations

Runoff = 32.58 cfs@ 12.15 hrs, Volume= 117,174 cf, Depth> 3.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 10-yr Rainfall=5.20"

SWM PRE Onsite UNDETAINED Runoff Calculations

Curve Number Calculations

Area (ac)	CN	Description
11.210	98	Paved parking, HSG D
16.130	80	>75% Grass cover, Good, HSG D
27.340	87	Weighted Average
16.130		59.00% Pervious Area
11.210		41.00% Impervious Area

Time of Concentration Calculations

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

1 Year Flow Calculations

Runoff = 52.17 cfs@ 12.09 hrs, Volume= 136,159 cf, Depth> 1.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 1-yr Rainfall=2.70"

2 Year Flow Calculations

Runoff = 67.33 cfs@ 12.09 hrs, Volume= 176,935 cf, Depth> 1.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 2-yr Rainfall=3.20"

10 Year Flow Calculations

Runoff = 116.25 cfs@ 12.09 hrs, Volume= 348,346 cf, Depth> 3.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 10-yr Rainfall=5.20"

STUDY POINT 1 SWM PRE FLOWS

1 Year Flow Calculations

Inflow Area = 1,549,865 sf, 45.22% Impervious, Inflow Depth > 1.44" for 1-yr event
Inflow = 66.27 cfs@ 12.10 hrs, Volume= 186,226 cf
Primary = 66.27 cfs@ 12.10 hrs, Volume= 186,226 cf, Atten= 0%, Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs

2 Year Flow Calculations

Inflow Area = 1,549,865 sf, 45.22% Impervious, Inflow Depth > 1.86" for 2-yr event
Inflow = 84.95 cfs@ 12.10 hrs, Volume= 240,188 cf
Primary = 84.95 cfs@ 12.10 hrs, Volume= 240,188 cf, Atten= 0%, Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs

10 Year Flow Calculations

Inflow Area = 1,549,865 sf 45.22% Impervious, Inflow Depth > 3.60" for 10-yr event
Inflow = 145.10 cfs@ 12.10 hrs, Volume= 465,520 cf
Primary = 145.10 cfs@ 12.10 hrs, Volume= 465,520 cf, Atten= 0%, Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs

SWM PRE - Study Point "2"

SWM PRE OFFSITE Undetained Runoff Calculations

Curve Number Calculations

Area (ac)	CN	Description
11.210	98	Urban commercial, 85% imp, HSG D
1.682		15.00% Pervious Area
9.529		85.00% Impervious Area

Time of Concentration Calculations

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

1 Year Flow Calculations

Runoff = 33.04 cfs@ 12.08 hrs, Volume= 95,334 cf, Depth> 2.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 1-yr Rainfall=2.70"

2 Year Flow Calculations

Runoff = 39.16 cfs@ 12.08 hrs, Volume= 114,673 cf, Depth> 2.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 2-yr Rainfall=3.20"

10 Year Flow Calculations

Runoff = 56.97 cfs@ 12.08 hrs, Volume= 191,351 cf, Depth> 4.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 10-yr Rainfall=5.20"

SWM PRE OFFSITE Undetained Runoff Calculations

Curve Number Calculations

Area (ac)	CN	Description
8.210	98	Paved parking, HSG D
11.820	80	>75% Grass cover, Good, HSG D
20.030	87	Weighted Average
11.820		59.01% Pervious Area
8.210		40.99% Impervious Area

Time of Concentration Calculations

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

1 Year Flow Calculations

Runoff = 48.77 cfs@ 12.03 hrs, Volume= 99,926 cf, Depth> 1.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 1-yr Rainfall=2.70"

2 Year Flow Calculations

Runoff = 62.66 cfs@ 12.03 hrs, Volume= 129,838 cf, Depth> 1.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 2-yr Rainfall=3.20"

10 Year Flow Calculations

Runoff = 106.06 cfs@ 12.03 hrs, Volume= 255,599 cf, Depth> 3.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 10-yr Rainfall=5.20"

STUDY POINT 2 SWM PRE FLOWS

1 Year Flow Calculations

Inflow Area = 1,360,814 sf, 56.78% Impervious, Inflow Depth > 1.72" for 1-yr event
Inflow = 76.56 cfs@ 12.04 hrs, Volume= 195,259 cf
Primary = 76.56 cfs@ 12.04 hrs, Volume= 195,259 cf, Atten= 0%, Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs

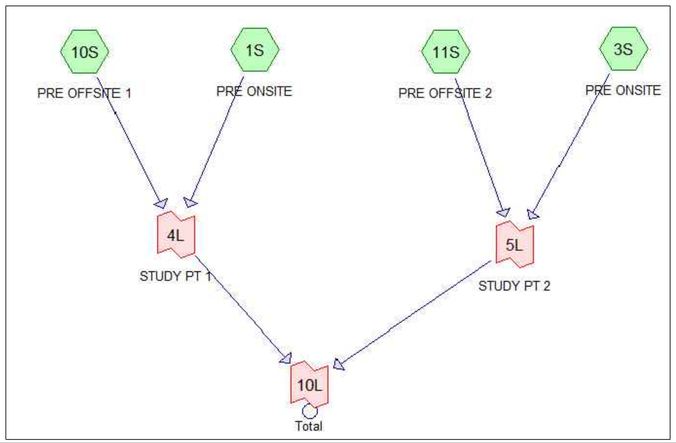
2 Year Flow Calculations

Inflow Area = 1,360,814 sf, 56.78% Impervious Inflow Depth > 2.16" for 2-yr event
Inflow = 95.46 cfs@ 12.04 hrs, Volume= 244,511 cf
Primary = 95.46 cfs@ 12.04 hrs, Volume= 244,511 cf, Atten= 0%, Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs

10 Year Flow Calculations

Inflow Area = 1,360,814 sf, 56.78% Impervious, Inflow Depth > 3.94" for 10-yr event
Inflow = 153.75 cfs@ 12.04 hrs, Volume= 446,950 cf
Primary = 153.75 cfs@ 12.04 hrs, Volume= 446,950 cf, Atten= 0%, Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs

PRE-DEVELOPMENT HYDROCAD MODEL



APPROVED
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DEPARTMENT OF PLANNING & ZONING
DIRECTOR DATE
DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____
DIRECTOR DATE
CHAIRMAN, PLANNING COMMISSION DATE
DATE RECORDED _____
INSTRUMENT NO. DEED BOOK NO. PAGE NO.

REVISIONS

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PLAN DATE
09-12-2022

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09/12/22

SWM COMPS & NARRATIVE
DEVELOPMENT CONCEPT II
INOVA HOSPITAL CAMPUS PHASE I
CITY OF ALEXANDRIA, VIRGINIA
DATE: SEPT. 2022
C.I.= N/A
SCALE: N/A

SHEET
C13.00

FILE No.
SP-13086

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SWM POST - Study Point "1"

SWM POST OFFSITE Undetained Runoff Calculations

Curve Number Calculations

Area (ac)	CN	Description
6.449	95	Urban commercial, 85% imp, HSG D
0.967		15.00% Pervious Area
5.482		85.00% Impervious Area

Time of Concentration Calculations

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry,**

1 Year Flow Calculations

Runoff = 14.72 cfs@ 12.15 hrs, Volume= 47,538 cf, Depth> 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 1-yr Rainfall=2.70"

2 Year Flow Calculations

Runoff = 17.82 cfs@ 12.15 hrs, Volume= 58,407 cf, Depth> 2.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 2-yr Rainfall=3.20"

10 Year Flow Calculations

Runoff = 27.18 cfs@ 12.15 hrs, Volume= 101,915 cf, Depth> 4.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 10-yr Rainfall=5.20"

SWM POST ONSITE Block I DETAINED (VAULT #2) Runoff Calculations

Curve Number Calculations

Area (ac)	CN	Description
2.570	95	Urban commercial, 85% imp, HSG D
0.386		15.00% Pervious Area
2.184		85.00% Impervious Area

Time of Concentration Calculations

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

1 Year Flow Calculations

Runoff = 6.98 cfs@ 12.08 hrs, Volume= 18,970 cf, Depth> 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 1-yr Rainfall=2.70"

2 Year Flow Calculations

Runoff = 8.43 cfs@ 12.08 hrs, Volume= 23,306 cf, Depth> 2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 2-yr Rainfall=3.20"

10 Year Flow Calculations

Runoff = 12.70 cfs@ 12.08 hrs, Volume= 40,668 cf, Depth> 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 10-yr Rainfall=5.20"

SWM POST ONSITE Block G DETAINED (VAULT #2) Runoff Calculations

Curve Number Calculations

Area (ac)	CN	Description
1.295	95	Urban commercial, 85% imp, HSG D
0.194		15.00% Pervious Area
1.101		85.00% Impervious Area

Time of Concentration Calculations

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

1 Year Flow Calculations

Runoff = 3.52 cfs@ 12.08 hrs, Volume= 9,559 cf, Depth> 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 1-yr Rainfall=2.70"

2 Year Flow Calculations

Runoff = 4.25 cfs@ 12.08 hrs, Volume= 11,744 cf, Depth> 2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 2-yr Rainfall=3.20"

10 Year Flow Calculations

Runoff = 6.40 cfs@ 12.08 hrs, Volume= 20,492 cf, Depth> 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 10-yr Rainfall=5.20"

SWM POST ONSITE Block E DETAINED (VAULT #2) Runoff Calculations

Curve Number Calculations

Area (ac)	CN	Description
2.300	95	Urban commercial, 85% imp, HSG D
0.345		15.00% Pervious Area
1.955		85.00% Impervious Area

Time of Concentration Calculations

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

1 Year Flow Calculations

Runoff = 6.25 cfs@ 12.08 hrs, Volume= 16,977 cf, Depth> 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 1-yr Rainfall=2.70"

2 Year Flow Calculations

Runoff = 7.54 cfs@ 12.08 hrs, Volume= 20,858 cf, Depth> 2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 2-yr Rainfall=3.20"

10 Year Flow Calculations

Runoff = 11.36 cfs@ 12.08 hrs, Volume= 36,395 cf, Depth> 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 10-yr Rainfall=5.20"

SWM POST ONSITE PORTION OF INOVA DETAINED (VAULT #2) Runoff Calculations

Curve Number Calculations

Area (ac)	CN	Description
3.510	95	Urban commercial, 85% imp, HSG D
0.527		15.00% Pervious Area
2.983		85.00% Impervious Area

Time of Concentration Calculations

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

1 Year Flow Calculations

Runoff = 9.53 cfs @ 12.08 hrs, Volume= 25,909 cf, Depth> 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 1-yr Rainfall=2.70"

2 Year Flow Calculations

Runoff = 11.51 cfs @ 12.08 hrs, Volume= 31,831 cf, Depth> 2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 2-yr Rainfall=3.20"

10 Year Flow Calculations

Runoff = 17.34 cfs @ 12.08 hrs, Volume= 55,542 cf, Depth> 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 10-yr Rainfall=5.20"

SWM POST ONSITE Block H DETAINED (VAULT #2) Runoff Calculations

Curve Number Calculations

Area (ac)	CN	Description
1.610	95	Urban commercial, 85% imp, HSG D
0.242		15.00% Pervious Area
1.368		85.00% Impervious Area

Time of Concentration Calculations

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

1 Year Flow Calculations

Runoff = 4.37 cfs@ 12.08 hrs, Volume= 11,884 cf, Depth> 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 1-yr Rainfall=2.70"

2 Year Flow Calculations

Runoff = 5.28 cfs@ 12.08 hrs, Volume= 14,600 cf, Depth> 2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 2-yr Rainfall=3.20"

10 Year Flow Calculations

Runoff = 7.95 cfs@ 12.08 hrs, Volume= 25,477 cf, Depth> 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 10-yr Rainfall=5.20"

SWM POST ONSITE Block K DETAINED (VAULT #2) Runoff Calculations

Curve Number Calculations

Area (ac)	CN	Description
2.530	95	Urban commercial, 85% imp, HSG D
0.380		15.00% Pervious Area
2.151		85.00% Impervious Area

Time of Concentration Calculations

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

1 Year Flow Calculations

Runoff = 6.87 cfs@ 12.08 hrs, Volume= 18,675 cf, Depth> 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 1-yr Rainfall=2.70"

2 Year Flow Calculations

Runoff = 8.30 cfs@ 12.08 hrs, Volume= 22,943 cf, Depth> 2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 2-yr Rainfall=3.20"

10 Year Flow Calculations

Runoff = 12.50 cfs@ 12.08 hrs, Volume= 40,035 cf, Depth> 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 10-yr Rainfall=5.20"

SWM POST ONSITE Parks, Roads, S/W ,etc. DETAINED (VAULT #2) Runoff Calculations

Curve Number Calculations

Area (ac)	CN	Description
3.645	95	Urban commercial, 85% imp, HSG D
0.547		15.00% Pervious Area
3.098		85.00% Impervious Area

Time of Concentration Calculations

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

1 Year Flow Calculations

Runoff = 9.90 cfs@ 12.08 hrs, Volume= 26,905 cf, Depth> 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 1-yr Rainfall=2.70"

2 Year Flow Calculations

Runoff = 11.96 cfs@ 12.08 hrs, Volume= 33,055 cf, Depth> 2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 2-yr Rainfall=3.20"

10 Year Flow Calculations

Runoff = 18.01 cfs@ 12.08 hrs, Volume= 57,678 cf, Depth> 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 10-yr Rainfall=5.20"

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SPECIAL USE PERMIT NO. _____

DEPARTMENT OF PLANNING & ZONING

_____ DIRECTOR _____ DATE

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____

_____ DIRECTOR _____ DATE

_____ CHAIRMAN, PLANNING COMMISSION _____ DATE

DATE RECORDED _____

_____ INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO.

No.	DATE	DESCRIPTION
		REVISIONS

PLAN DATE
09-12-2022

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COMMONWEALTH OF VIRGINIA
CLAYTON C. TOCE
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PROFESSIONAL ENGINEER
09/12/22

SWM COMPS & NARRATIVE

DEVELOPMENT CONCEPT II
INOVA HOSPITAL CAMPUS PHASE I

CITY OF ALEXANDRIA, VIRGINIA

DATE: SEPT. 2022
C.I.= N/A
SCALE: N/A

SHEET
C14.00

FILE No.
SP-13086

Urban, Ltd. – J:\JOBS\LondonMark\DSUP\Block-A&B&C (INOVA)\Preliminary Site Plan\13086-10-SWM COMPS & NARRATIVE.dwg [POST-DEV SP1] November 04, 2022 – 2:13pm owallo

SWM POST - Study Point "1"

POST-DEVELOPMENT HYDROCAD MODEL - Study Point "1"

SWM POST ONSITE Ex. Garage DETAINED (VAULT #4) Runoff Calculations

Curve Number Calculations

Area (ac)	CN	Description
8.060	98	Paved parking, HSG D
8.060		100.00% Impervious Area

Time of Concentration Calculations

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

1 Year Flow Calculations

Runoff = 23.76 cfs @ 12.08 hrs, Volume= 68,545 cf, Depth> 2.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 1-yr Rainfall=2.70"

2 Year Flow Calculations

Runoff = 28.16 cfs @ 12.08 hrs, Volume= 82,450 cf, Depth> 2.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 2-yr Rainfall=3.20"

10 Year Flow Calculations

Runoff = 40.96 cfs @ 12.08 hrs, Volume= 137,581 cf, Depth> 4.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 10-yr Rainfall=5.20"

STUDY POINT 1 SWM POST FLOWS

1 Year Flow Calculations

Inflow Area = 1,392,570 sf, 88.78%Impervious, Inflow Depth >2.09" for 1-yr event
Inflow = 39.40 cfs @ 12.18 hrs, Volume= 242,361 cf
Primary = 39.40 cfs @ 12.18 hrs, Volume= 242,361 cf, Atten= 0%, Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs

2 Year Flow Calculations

Inflow Area = 1,392,570 sf, 88.78%Impervious, Inflow Depth >2.55" for 2-yr event
Inflow = 52.77 cfs @ 12.21 hrs, Volume= 296,122 cf
Primary = 52.77 cfs @ 12.21 hrs, Volume= 296,122 cf, Atten= 0%, Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs

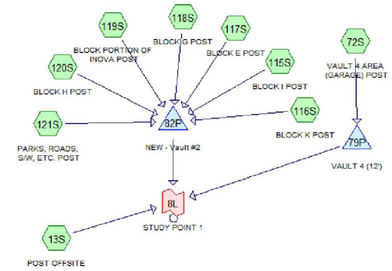
10 Year Flow Calculations

Inflow Area = 1,392,570 sf, 88.78%Impervious, Inflow Depth >4.39" for 10-yr event
Inflow = 118.46 cfs @ 12.15 hrs, Volume= 509,764 cf
Primary = 118.46 cfs @ 12.15 hrs, Volume= 509,764 cf Atten= 0%, Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs

ENERGY BALANCE METHOD TO STUDY POINT "1"

$Q_{(Developed)}$=	39.40	cfs
$Q_{(Pre\text{-}Developed)}$=	66.27	cfs
$RV_{(Pre\text{-}Developed)}$=	4.28	ac-ft
$RV_{(Developed)}$=	5.56	ac-ft
I.F. =	0.8	(0.8 for sites greater than one acre) (0.9 for sites less than or equal to one acre)

Q Developed		I.F x ($Q_{Pre\text{-}Developed}$ X $RV_{Pre\text{-}Developed}$)/$RV_{Developed}$
39.40	≤	40.81



VAULT #2

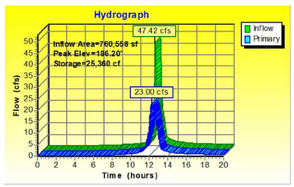
1 YEAR EVENT SUMMARY

Inflow Area = 760,558 sf 85.00%Impervious, Inflow Depth >2.03" for 1-yr event
Inflow = 47.42 cfs@ 12.08 hrs, Volume= 128,878 cf
Outflow = 23.00 cfs@ 12.27 hrs, Volume= 127,952 cf, Atten= 52%, Lag= 11.1 min
Primary = 23.00 cfs@ 12.27 hrs, Volume= 127,952 cf

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Peak Elev= 186.20'@ 12.27 hrs Surf.Area= 4,200 sf Storage= 25,360 cf

Plug-Flow detention time=15.8 min calculated for 127,888 cf (99% of inflow)
Center-of-Mass det. time=12.7 min (769.2 - 756.5)

Primary OutFlow Max=23.00 cfs @ 12.27 hrs HW=186.20' (Free Discharge)
└1=Culvert (Passes 23.00 cfs of 222.28 cfs potential flow)
├2=Orifice/Grate (Orifice Controls 23.00 cfs @ 11.50 fps)
├3=Orifice/Grate (Controls 0.00 cfs)
└4=Orifice/Grate (Controls 0.00 cfs)



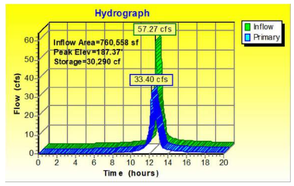
2 YEAR EVENT SUMMARY

Inflow Area = 760,558 sf, 85.00%Impervious, Inflow Depth >2.50" for 2-yr event
Inflow = 57.27 cfs@ 12.08 hrs, Volume= 158,337 cf
Outflow = 33.40 cfs@ 12.23 hrs, Volume= 157,324 cf, Atten= 42%, Lag= 8.6 min
Primary = 33.40 cfs@ 12.23 hrs, Volume= 157,324 cf

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Peak Elev= 187.37' @ 12.23 hrs Surf.Area= 4,200 sf Storage= 30,290 cf

Plug-Flow detention time=15.5 min calculated for 157,324 cf (99% of inflow)
Center-of-Mass det. time=12.7 min (764.5 - 751.8)

Primary OutFlow Max=33.38 cfs @ 12.23 hrs HW=187.37' (Free Discharge)
└1=Culvert (Passes 33.38 cfs of 256.50 cfs potential flow)
├2=Orifice/Grate (Orifice Controls 25.25 cfs @ 12.63 fps)
├3=Orifice/Grate (Orifice Controls 8.13 cfs @ 3.47 fps)
└4=Orifice/Grate (Orifice Controls 0.00 cfs @ 0.09 fps)



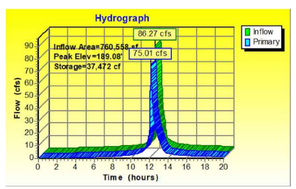
10 YEAR EVENT SUMMARY

Inflow Area = 760,558 sf, 85.00%Impervious, Inflow Depth >4.36" for 10-yr event
Inflow = 86.27 cfs@ 12.08 hrs Volume= 276,287 cf
Outflow = 75.01 cfs@ 12.14 hrs Volume= 274,936 cf, Atten= 13%, Lag= 3.5 min
Primary = 75.01 cfs@ 12.14 hrs Volume= 274,936 cf

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Peak Elev= 189.08' @ 12.14 hrs Surf.Area= 4,200 sf Storage= 37,472 cf

Plug-Flow detention time=12.9 min calculated for 274,798 cf (99% of inflow)
Center-of-Mass det. time=10.7 min (749.4 - 738.7)

Primary OutFlow Max=74.94 cfs @ 12.14 hrs HW=189.08' (Free Discharge)
└1=Culvert (Passes 74.94 cfs of 299.43 cfs potential flow)
├2=Orifice/Grate (Orifice Controls 28.22 cfs @ 14.11 fps)
├3=Orifice/Grate (Orifice Controls 18.02 cfs @ 7.21 fps)
└4=Orifice/Grate (Orifice Controls 28.71 cfs @ 4.20 fps)



VAULT #4

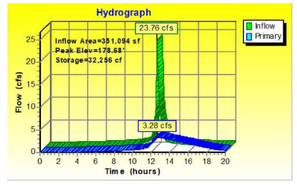
1 YEAR EVENT SUMMARY

Inflow Area = 351,094 sf ,100.00%Impervious, Inflow Depth >2.34" for 1-yr event
Inflow = 23.76 cfs @ 12.08 hrs, Volume= 68,545 cf
Outflow = 3.28 cfs @ 12.67 hrs, Volume= 66,871 cf, Atten= 86%, Lag= 35.2 min
Primary = 3.28 cfs @ 12.67 hrs, Volume= 66,871 cf

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Peak Elev= 178.68' @ 12.67 hrs Surf.Area= 4,200 sf Storage= 32,256 cf

Plug-Flow detention time=112.5 min calculated for 66,871 cf (98% of inflow)
Center-of-Mass det. time=101.9 min (834.7 - 732.9)

Primary OutFlow Max=3.28 cfs @ 12.67 hrs HW=178.68' (Free Discharge)
└1=Culvert (Passes 3.28 cfs of 99.40 cfs potential flow)
├2=Orifice/Grate (Orifice Controls 3.28 cfs @ 13.12 fps)
├3=Orifice/Grate (Orifice Controls 0.00 cfs @ 0.03 fps)
└4=Orifice/Grate (Controls 0.00 cfs)



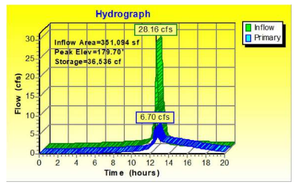
2 YEAR EVENT SUMMARY

Inflow Area = 351,094 sf ,100.00%Impervious, Inflow Depth >2.82" for 2-yr event
Inflow = 28.16 cfs @ 12.08 hrs, Volume= 82,450 cf
Outflow = 6.70 cfs @ 12.56 hrs, Volume= 80,392 cf, Atten= 76%, Lag= 28.4 min
Primary = 6.70 cfs @ 12.56 hrs, Volume= 80,392 cf

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Peak Elev= 179.70' @ 12.56 hrs Surf.Area= 4,200 sf Storage= 36,536 cf

Plug-Flow detention time=108.4 min calculated for 80,392 cf (98% of inflow)
Center-of-Mass det. time=97.5 min (827.0 - 729.5)

Primary OutFlow Max=6.70 cfs @ 12.56 hrs HW=179.70' (Free Discharge)
└1=Culvert (Passes 6.70 cfs of 109.02 cfs potential flow)
├2=Orifice/Grate (Orifice Controls 3.50 cfs @ 14.00 fps)
├3=Orifice/Grate (Orifice Controls 3.20 cfs @ 3.49 fps)
└4=Orifice/Grate (Controls 0.00 cfs)



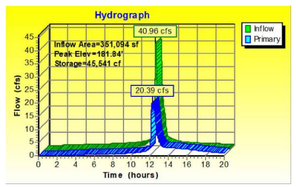
10 YEAR EVENT SUMMARY

Inflow Area = 351,094 sf ,100.00%Impervious, Inflow Depth >4.70" for 10-yr event
Inflow = 40.96 cfs @ 12.08 hrs, Volume= 137,581 cf
Outflow = 20.39 cfs @ 12.28 hrs, Volume= 132,914 cf, Atten= 50%, Lag= 11.6 min
Primary = 20.39 cfs @ 12.28 hrs, Volume= 132,914 cf

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Peak Elev= 181.84' @ 12.28 hrs Surf.Area= 4,200 sf Storage= 45,541 cf

Plug-Flow detention time=88.5 min calculated for 132,914 cf (97% of inflow)
Center-of-Mass det. time=73.7 min (792.9 - 719.2)

Primary OutFlow Max=20.39 cfs @ 12.28 hrs HW=181.84' (Free Discharge)
└1=Culvert (Passes 20.39 cfs of 126.90 cfs potential flow)
├2=Orifice/Grate (Orifice Controls 3.92 cfs @ 15.67 fps)
├3=Orifice/Grate (Orifice Controls 7.25 cfs @ 7.91 fps)
└4=Orifice/Grate (Orifice Controls 9.22 cfs @ 6.15 fps)



REVISIONS

No.	DATE	DESCRIPTION

PLAN DATE 09-12-2022

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PROFESSIONAL ENGINEER
09/12/22

SWM COMPS & NARRATIVE
DEVELOPMENT CONCEPT II
INOVA HOSPITAL CAMPUS PHASE I
CITY OF ALEXANDRIA, VIRGINIA
DATE: SEPT. 2022
C.I.= N/A
SCALE: N/A

APPROVED
SPECIAL USE PERMIT NO. _____
DEPARTMENT OF PLANNING & ZONING
DIRECTOR DATE
DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____
DIRECTOR DATE
CHAIRMAN, PLANNING COMMISSION DATE
DATE RECORDED _____
INSTRUMENT NO. DEED BOOK NO. PAGE NO.

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FILE No.
SP-13086

Urban, Ltd. – J:\JOBS\Landmark Mall\DSUP\Block-A&B&C (INOVA)\Preliminary Site Plan\13086-10-SWM COMPS & NARRATIVE.dwg [POST-DEV SP1 (2)] November 04, 2022 – 2:13pm awalia

SWM POST - Study Point "2"

SWM POST OFFSITE Undetained Runoff Calculations

Curve Number Calculations

Area (ac)	CN	Description
11.210	95	Urban commercial, 85% imp, HSG D
1.682		15.00% Pervious Area
9.528		85.00% Impervious Area

Time of Concentration Calculations

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

1 Year Flow Calculations

Runoff = 30.45 cfs @ 12.08 hrs , Volume= 82,745 cf , Depth>2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 1-yr Rainfall=2.70"

2 Year Flow Calculations

Runoff = 36.77 cfs @ 12.08 hrs , Volume= 101,658 cf , Depth>2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 2-yr Rainfall=3.20"

10 Year Flow Calculations

Runoff = 55.39 cfs @ 12.08 hrs , Volume= 177,387 cf , Depth>4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 10-yr Rainfall=5.20"

SWM POST ONSITE PORTION OF INOVA DETAINED (VAULT #3) Runoff Calculations

Curve Number Calculations

Area (ac)	CN	Description
* 6.190	95	
6.190		100.00% Pervious Area

Time of Concentration Calculations

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

1 Year Flow Calculations

Runoff = 16.81 cfs@ 12.08 hrs , Volume= 45,691 cf , Depth>2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 1-yr Rainfall=2.70"

2 Year Flow Calculations

Runoff = 20.31 cfs @ 12.08 hrs, Volume= 56,134 cf, Depth>2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 2-yr Rainfall=3.20"

10 Year Flow Calculations

Runoff = 30.58 cfs @ 12.08 hrs , Volume= 97,950 cf , Depth>4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 10-yr Rainfall=5.20"

SWM POST ONSITE Block D DETAINED (VAULT #3) Runoff Calculations

Curve Number Calculations

Area (ac)	CN	Description
* 1.390	95	
1.390		100.00% Pervious Area

Time of Concentration Calculations

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

1 Year Flow Calculations

Runoff = 3.78 cfs @ 12.08 hrs , Volume= 10,260 cf, Depth>2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 1-yr Rainfall=2.70"

2 Year Flow Calculations

Runoff = 4.56 cfs @ 12.08 hrs , Volume= 12,605 cf, Depth>2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 2-yr Rainfall=3.20"

10 Year Flow Calculations

Runoff = 6.87 cfs @ 12.08 hrs , Volume= 21,995 cf, Depth>4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 10-yr Rainfall=5.20"

SWM POST ONSITE Block J DETAINED (VAULT #3) Runoff Calculations

Curve Number Calculations

Area (ac)	CN	Description
* 1.820	95	
1.820		100.00% Pervious Area

Time of Concentration Calculations

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

1 Year Flow Calculations

Runoff = 4.94 cfs @ 12.08 hrs , Volume= 13,434 cf, Depth>2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 1-yr Rainfall=2.70"

2 Year Flow Calculations

Runoff = 5.97 cfs @ 12.08 hrs, Volume= 16,505 cf, Depth>2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 2-yr Rainfall=3.20"

10 Year Flow Calculations

Runoff = 8.99 cfs @ 12.08 hrs, Volume= 28,800 cf, Depth>4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 10-yr Rainfall=5.20"

SWM POST ONSITE Block L DETAINED (VAULT #3) Runoff Calculations

Curve Number Calculations

Area (ac)	CN	Description
* 3.080	95	
3.080		100.00% Pervious Area

Time of Concentration Calculations

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

1 Year Flow Calculations

Runoff = 8.37 cfs @ 12.08 hrs, Volume= 22,735 cf, Depth>2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 1-yr Rainfall=2.70"

2 Year Flow Calculations

Runoff = 10.10 cfs @ 12.08 hrs, Volume= 27,931 cf, Depth>2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 2-yr Rainfall=3.20"

10 Year Flow Calculations

Runoff = 15.22 cfs @ 12.08 hrs, Volume= 48,738 cf, Depth>4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 10-yr Rainfall=5.20"

SWM POST ONSITE Block M DETAINED (VAULT #3) Runoff Calculations

Curve Number Calculations

Area (ac)	CN	Description
* 3.080	95	
3.080		100.00% Pervious Area

Time of Concentration Calculations

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

1 Year Flow Calculations

Runoff = 8.37 cfs @ 12.08 hrs , Volume= 22,735 cf , Depth>2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 1-yr Rainfall=2.70"

2 Year Flow Calculations

Runoff = 9.32 cfs @ 12.08 hrs , Volume= 25,755 cf, Depth>2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 2-yr Rainfall=3.20"

10 Year Flow Calculations

Runoff = 14.03 cfs @ 12.08 hrs , Volume= 44,940 cf, Depth>4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 10-yr Rainfall=5.20"

SWM POST ONSITE Roads, S/W ,etc. DETAINED (VAULT #3) Runoff Calculations

Curve Number Calculations

Area (ac)	CN	Description
* 5.410	95	
5.410		100.00% Pervious Area

Time of Concentration Calculations

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

1 Year Flow Calculations

Runoff = 14.69 cfs @ 12.08 hrs, Volume= 39,933 cf, Depth>2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 1-yr Rainfall=2.70"

2 Year Flow Calculations

Runoff = 17.75 cfs@ 12.08 hrs, Volume= 49,061 cf, Depth>2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 2-yr Rainfall=3.20"

10 Year Flow Calculations

Runoff = 26.73 cfs @ 12.08 hrs, Volume= 85,608 cf, Depth>4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Landmark Mall 24-hr S1 10-yr Rainfall=5.20"

APPROVED
SPECIAL USE PERMIT NO. _____

DEPARTMENT OF PLANNING & ZONING

_____ DIRECTOR _____ DATE

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____

_____ DIRECTOR _____ DATE

_____ CHAIRMAN, PLANNING COMMISSION _____ DATE

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REVISIONS

No.	DATE	DESCRIPTION

PLAN DATE
09-12-2022

Urban, Ltd.
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COMMONWEALTH OF VIRGINIA
CLAYTON C. TOCK
Lic. No. 036790
PROFESSIONAL ENGINEER
09/12/22

SWM COMPS & NARRATIVE

DEVELOPMENT CONCEPT II
INOVA HOSPITAL CAMPUS PHASE I

CITY OF ALEXANDRIA, VIRGINIA

DATE: SEPT. 2022
C.I.= N/A
SCALE: N/A

SHEET
C15.00

FILE No.
SP-13086

Urban, Ltd. – J:\JOBS\LondonMarkMall\DSUP\Block-A&B&C (INOVA)\Preliminary Site Plan\13086-10-SWM COMPS & NARRATIVE.dwg [POST-DEV SP2] November 04, 2022 – 2:13pm cwallo

SWM POST - Study Point "2"

STUDY POINT 1 SWM POST FLOWS

1 Year Flow Calculations

Inflow Area = 1,391,306 sf, 29.83% Impervious, Inflow Depth >2.03" for 1-yr event
Inflow = 37.61 cfs @ 12.09 hrs, Volume= 235,762 cf
Primary = 37.61 cfs @ 12.09 hrs, Volume= 235,762 cf, Atten= 0%, Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs

2 Year Flow Calculations

Inflow Area = 1,391,306 sf, 29.83% Impervious, Inflow Depth >2.50" for 2-yr event
Inflow = 44.83 cfs @ 12.09 hrs, Volume= 289,649 cf
Primary = 44.83 cfs @ 12.09 hrs, Volume= 289,649 cf, Atten= 0%, Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs

10 Year Flow Calculations

Inflow Area = 1,391,306 sf, 29.83%Impervious, Inflow Depth >4.35" for 10-yr event
Inflow = 126.27 cfs@ 12.14 hrs, Volume= 504,268 cf
Primary = 126.27 cfs@ 12.14 hrs, Volume= 504,268 cf, Atten= 0%, Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs

ENERGY BALANCE METHOD TO STUDY POINT "2"

$Q_{(Developed)}$=	37.61	cfs
$Q_{(Pre\text{-}Developed)}$=	76.56	cfs
$RV_{(Pre\text{-}Developed)}$=	4.48	ac-ft
$RV_{(Developed)}$=	5.41	ac-ft
I.F. =	0.8	(0.8 for sites greater than one acre) (0.9 for sites less than or equal to one acre)

Q Developed		I.F x ($Q_{Pre\text{-}Developed}$ x $RV_{Pre\text{-}Developed}$)/$RV_{Developed}$
37.61	≤	50.75

VAULT #3

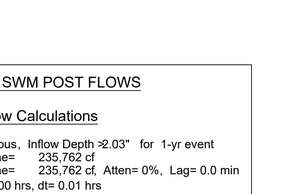
1 YEAR EVENT SUMMARY

Inflow Area = 902,999 sf, 0.00% Impervious, Inflow Depth > 2.03" for 1-yr event
Inflow = 56.31 cfs @ 12.08 hrs, Volume= 153,015 cf
Outflow = 10.03 cfs @ 12.63 hrs, Volume= 153,017 cf, Atten= 82% Lag= 32.8 min
Primary = 10.03 cfs @ 12.63 hrs, Volume= 153,017 cf

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Peak Elev= 177.36'@ 12.63 hrs Surf.Area= 8,192 sf Storage= 63,787 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time=60.8 min (817.3 - 756.5)

Primary OutFlow Max=10.02 cfs@ 12.63 hrs HW=177.36' (Free Discharge)
└1=Culvert (Passes 10.02 cfs of 295.09 cfs potential flow)
  ├2=Orifice/Grate (Orifice Controls 10.02 cfs @ 14.43 fps)
  ├3=Orifice/Grate (Orifice Controls 0.00 cfs @ 0.10 fps)
  └4=Orifice/Grate (Controls 0.00 cfs)



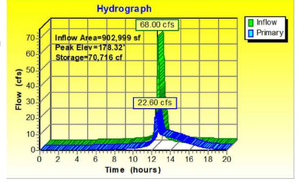
2 YEAR EVENT SUMMARY

Inflow Area = 902,999 sf, 0.00% Impervious, Inflow Depth > 2.50" for 2-yr event
Inflow = 68.00 cfs @ 12.08 hrs, Volume= 187,991 cf
Outflow = 22.60 cfs @ 12.39 hrs, Volume= 187,991 cf, Atten= 67% Lag= 18.6 min
Primary = 22.60 cfs @ 12.39 hrs, Volume= 187,991 cf

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Peak Elev= 178.32'@ 12.39 hrs Surf.Area= 8,192 sf Storage= 70,716 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time=57.7 min (809.5 - 751.8)

Primary OutFlow Max=22.59 cfs@ 12.39 hrs HW=178.32' (Free Discharge)
└1=Culvert (Passes 22.59 cfs of 323.80 cfs potential flow)
  ├2=Orifice/Grate (Orifice Controls 10.54 cfs @ 15.18 fps)
  ├3=Orifice/Grate (Orifice Controls 12.05 cfs @ 3.14 fps)
  └4=Orifice/Grate (Controls 0.00 cfs)



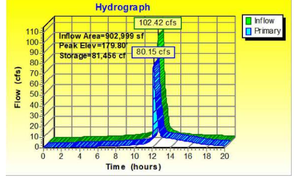
10 YEAR EVENT SUMMARY

Inflow Area = 902,999 sf, 0.00% Impervious, Inflow Depth > 4.36" for 10-yr event
Inflow = 102.42 cfs @ 12.08 hrs, Volume= 328,031 cf
Outflow = 80.15 cfs @ 12.17 hrs, Volume= 326,881 cf, Atten= 22% Lag= 5.0 min
Primary = 80.15 cfs @ 12.17 hrs, Volume= 326,881 cf

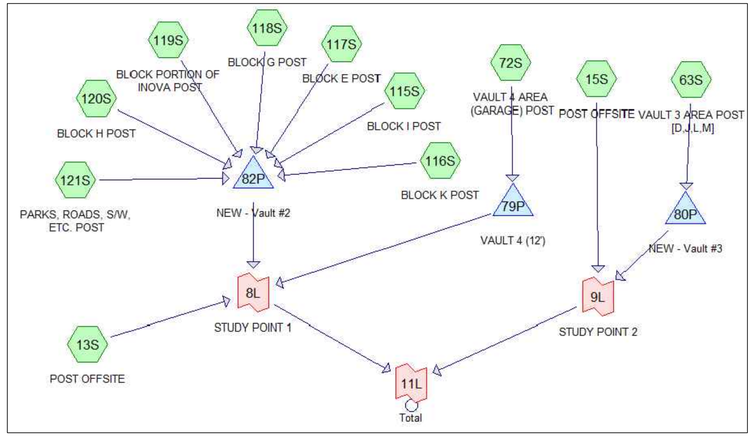
Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Peak Elev= 179.80'@ 12.17 hrs Surf.Area= 8,192 sf Storage= 81,456 cf

Plug-Flow detention time= 48.0 min calculated for 326,718 cf (100% of inflow)
Center-of-Mass det. time=46.4 min (785.0 - 738.7)

Primary OutFlow Max=80.11 cfs@ 12.17 hrs HW=179.80' (Free Discharge)
└1=Culvert (Passes 80.11 cfs of 361.20 cfs potential flow)
  ├2=Orifice/Grate (Orifice Controls 11.30 cfs @ 16.27 fps)
  ├3=Orifice/Grate (Orifice Controls 45.22 cfs @ 5.65 fps)
  └4=Orifice/Grate (Orifice Controls 23.58 cfs @ 4.72 fps)



POST-DEVELOPMENT HYDROCAD MODEL



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DIRECTOR _____ DATE _____
DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____
DIRECTOR _____ DATE _____
CHAIRMAN, PLANNING COMMISSION _____ DATE _____
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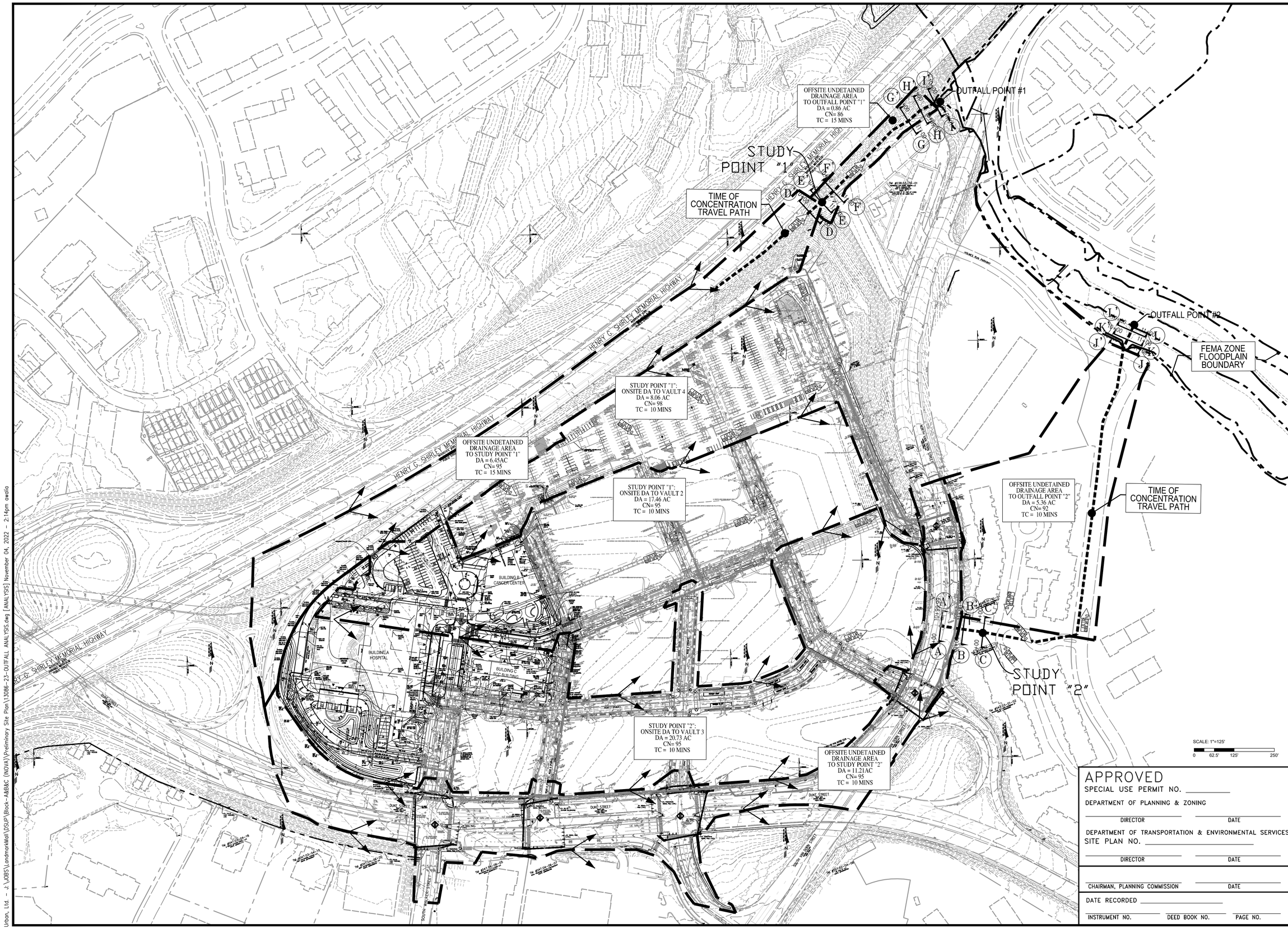
SWM COMPS & NARRATIVE
DEVELOPMENT CONCEPT II
INOVA HOSPITAL CAMPUS PHASE I
CITY OF ALEXANDRIA, VIRGINIA
DATE: SEPT. 2022
C.I.= N/A
SCALE: N/A

SHEET
C15.10

FILE No.
SP-13086

Urban, Ltd. – J:\JOBS\LandmarkMall\DSUP\Block-A&B&C (INOVA)\Preliminary Site Plan\13086-10-SWM COMPS & NARRATIVE.dwg [POST-DEV SP2 (1)] November 04, 2022 – 2:13pm awalia



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DEPARTMENT OF PLANNING & ZONING

DIRECTOR _____ DATE _____

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PLAN DATE 07-01-2022

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OUTFALL ANALYSIS

DEVELOPMENT CONCEPT II
INOVA HOSPITAL CAMPUS PHASE I

BUILDINGS A, B & C
CITY OF ALEXANDRIA, VIRGINIA

SCALE: 1"= 125' C.I.= 2' DATE: JULY, 2022

SHEET C16.00

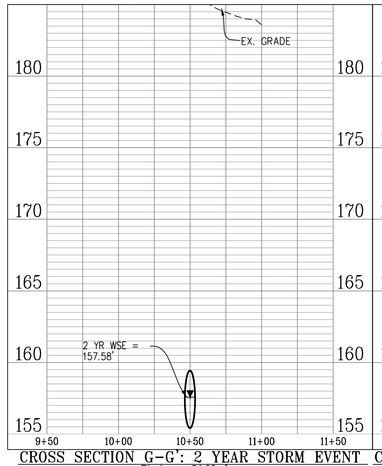
FILE No. SP-13086

Urban, Ltd. - J:\JOBS\LandmarkMall\DSUP\Block-A&B&C (INOVA)\Preliminary Site Plan\13086-23-OUTFALL ANALYSIS.dwg [ANALYSIS] November 04, 2022 - 2:14pm awalia

CROSS SECTION A-A': 2 YEAR STORM EVENT

Discharge: 44.83 cfs
Flow Area: 7.0 ft²
Wetted Perimeter: 6.6 ft
Hydraulic Radius: 12.6 in
Top Width: 3.98 ft
Normal Depth: 26.1 in
Critical Depth: 24.0 in
Critical Slope: 0.013 ft/ft
Velocity: 6.41 ft/s
Velocity Head: 0.64 ft
Specific Energy: 2.82 ft
Froude Number: 0.853
Maximum Discharge: 83.69 cfs
Discharge Full: 77.80 cfs
Slope Full: 0.003 ft/ft
Flow Type: Subcritical

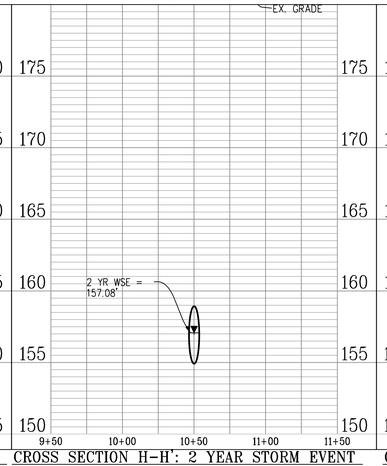
V2ALLOW=15 FPS



CROSS SECTION B-B': 2 YEAR STORM EVENT

Discharge: 44.83 cfs
Flow Area: 7.0 ft²
Wetted Perimeter: 6.6 ft
Hydraulic Radius: 12.6 in
Top Width: 3.98 ft
Normal Depth: 26.1 in
Critical Depth: 24.0 in
Critical Slope: 0.013 ft/ft
Velocity: 6.41 ft/s
Velocity Head: 0.64 ft
Specific Energy: 2.82 ft
Froude Number: 0.853
Maximum Discharge: 83.69 cfs
Discharge Full: 77.80 cfs
Slope Full: 0.003 ft/ft
Flow Type: Subcritical

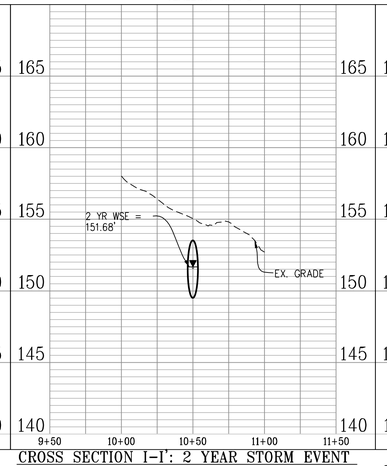
V2ALLOW=15 FPS



CROSS SECTION C-C': 2 YEAR STORM EVENT

Discharge: 44.83 cfs
Flow Area: 7.0 ft²
Wetted Perimeter: 6.6 ft
Hydraulic Radius: 12.6 in
Top Width: 3.98 ft
Normal Depth: 26.1 in
Critical Depth: 24.0 in
Critical Slope: 0.013 ft/ft
Velocity: 6.41 ft/s
Velocity Head: 0.64 ft
Specific Energy: 2.82 ft
Froude Number: 0.853
Maximum Discharge: 83.69 cfs
Discharge Full: 77.80 cfs
Slope Full: 0.003 ft/ft
Flow Type: Subcritical

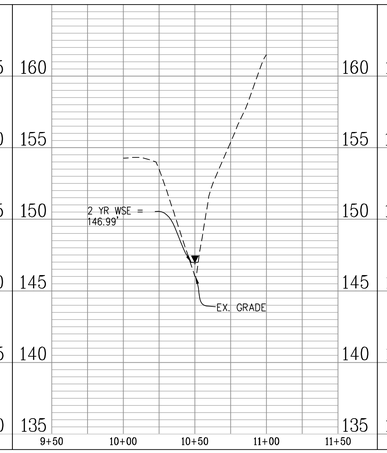
V2ALLOW=15 FPS



CROSS SECTION D-D': 2 YEAR STORM EVENT

Discharge: 52.77 cfs
Flow Area: 2.5 ft²
Wetted Perimeter: 5.5 ft
Hydraulic Radius: 5.5 in
Top Width: 5.07 ft
Normal Depth: 11.8 in
Critical Depth: 23.0 in
Critical Slope: 0.003 ft/ft
Velocity: 21.26 ft/s*
Velocity Head: 7.02 ft
Specific Energy: 8.00 ft
Froude Number: 5.355
Flow Type: Supercritical

*MANMADE CHANNEL LINED WITH CONCRETE. PER TABLE 7-1 OF THE VDOT DRAINAGE MANUAL, THE MAXIMUM ALLOWABLE VELOCITY IS NOT APPLICABLE.



CROSS SECTION E-E': 2 YEAR STORM EVENT

Discharge: 52.77 cfs
Flow Area: 3.3 ft²
Wetted Perimeter: 14.5 ft
Hydraulic Radius: 2.7 in
Top Width: 14.30 ft
Normal Depth: 4.8 in
Critical Depth: 10.9 in
Critical Slope: 0.003 ft/ft
Velocity: 16.10 ft/s*
Velocity Head: 4.03 ft
Specific Energy: 4.42 ft
Froude Number: 5.927
Flow Type: Supercritical

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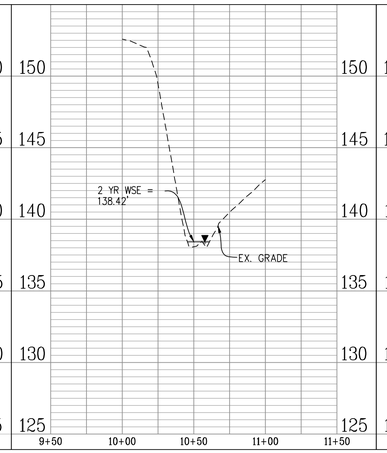

CROSS SECTION F-F': 2 YEAR STORM EVENT

Discharge: 52.77 cfs
Flow Area: 3.1 ft²
Wetted Perimeter: 7.9 ft
Hydraulic Radius: 4.8 in
Top Width: 7.71 ft
Normal Depth: 9.7 in
Critical Depth: 18.0 in
Critical Slope: 0.003 ft/ft
Velocity: 16.86 ft/s*
Velocity Head: 4.42 ft
Specific Energy: 5.23 ft
Froude Number: 4.665
Flow Type: Supercritical

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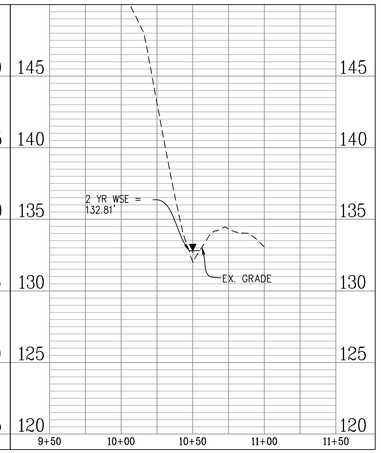
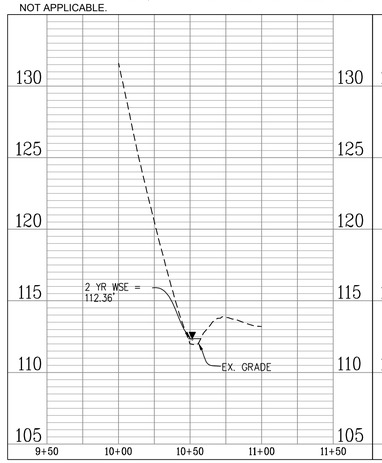


CROSS SECTION G-G': 2 YEAR STORM EVENT

Discharge: 54.39 cfs
Flow Area: 2.7 ft²
Wetted Perimeter: 8.8 ft
Hydraulic Radius: 3.7 in
Top Width: 8.69 ft
Normal Depth: 5.1 in
Critical Depth: 13.8 in
Critical Slope: 0.003 ft/ft
Velocity: 20.25 ft/s*
Velocity Head: 6.37 ft
Specific Energy: 6.80 ft
Froude Number: 6.421
Flow Type: Supercritical

*MANMADE CHANNEL LINED WITH CONCRETE. PER TABLE 7-1 OF THE VDOT DRAINAGE MANUAL, THE MAXIMUM ALLOWABLE VELOCITY IS NOT APPLICABLE.



CROSS SECTION H-H': 2 YEAR STORM EVENT

Discharge: 54.39 cfs
Flow Area: 1.7 ft²
Wetted Perimeter: 3.9 ft
Hydraulic Radius: 5.3 in
Top Width: 3.16 ft
Normal Depth: 12.9 in
Critical Depth: 29.2 in
Critical Slope: 0.003 ft/ft
Velocity: 31.88 ft/s*
Velocity Head: 15.80 ft
Specific Energy: 16.88 ft
Froude Number: 7.653
Flow Type: Supercritical

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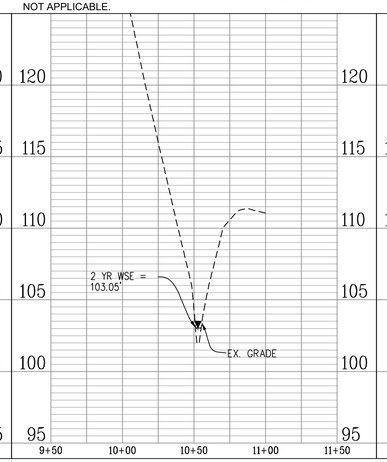
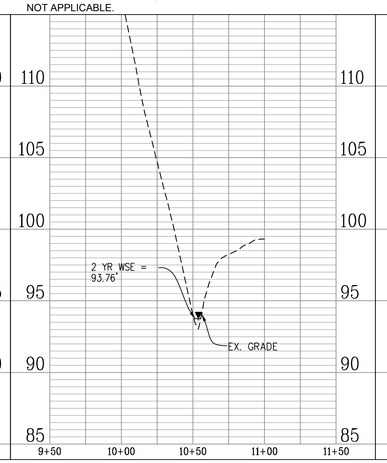


CROSS SECTION I-I': 2 YEAR STORM EVENT

Discharge: 54.39 cfs
Flow Area: 1.9 ft²
Wetted Perimeter: 5.0 ft
Hydraulic Radius: 4.7 in
Top Width: 4.69 ft
Normal Depth: 8.6 in
Critical Depth: 21.6 in
Critical Slope: 0.003 ft/ft
Velocity: 28.15 ft/s*
Velocity Head: 12.32 ft
Specific Energy: 13.03 ft
Froude Number: 7.737
Flow Type: Supercritical

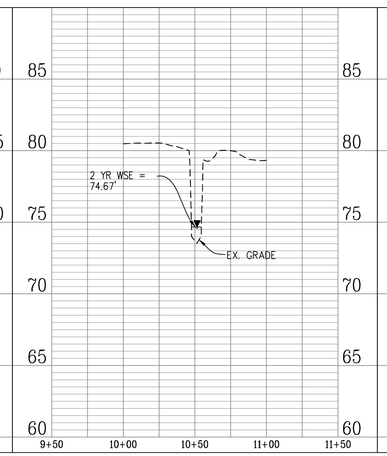
*MANMADE CHANNEL LINED WITH CONCRETE. PER TABLE 7-1 OF THE VDOT DRAINAGE MANUAL, THE MAXIMUM ALLOWABLE VELOCITY IS NOT APPLICABLE.



CROSS SECTION J-J': 2 YEAR STORM EVENT

Discharge: 60.84 cfs
Flow Area: 6.1 ft²
Wetted Perimeter: 8.1 ft
Hydraulic Radius: 9.0 in
Top Width: 7.00 ft
Normal Depth: 13.6 in
Critical Depth: 19.1 in
Critical Slope: 0.036 ft/ft
Velocity: 9.96 ft/s
Velocity Head: 1.54 ft
Specific Energy: 2.67 ft
Froude Number: 1.880
Flow Type: Supercritical

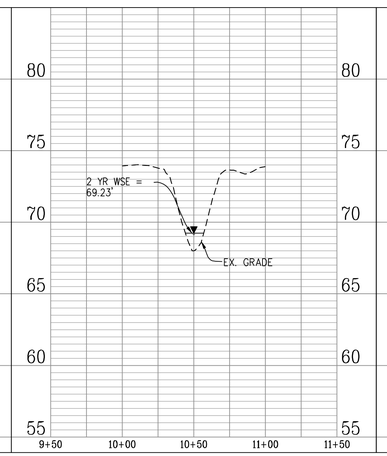
V2ALLOW= 13 FPS



CROSS SECTION K-K': 2 YEAR STORM EVENT

Discharge: 60.84 cfs
Flow Area: 6.8 ft²
Wetted Perimeter: 11.0 ft
Hydraulic Radius: 7.4 in
Top Width: 10.69 ft
Normal Depth: 14.7 in
Critical Depth: 19.5 in
Critical Slope: 0.032 ft/ft
Velocity: 9.01 ft/s
Velocity Head: 1.26 ft
Specific Energy: 2.49 ft
Froude Number: 1.999
Flow Type: Supercritical

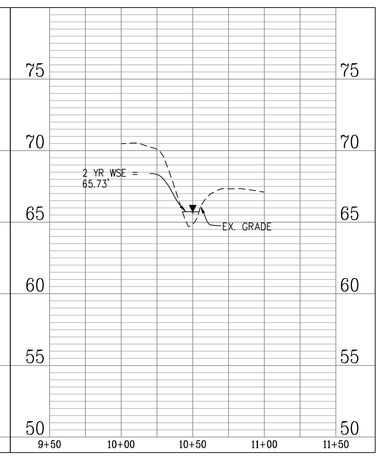
V2ALLOW= 13 FPS



CROSS SECTION L-L': 2 YEAR STORM EVENT

Discharge: 60.84 cfs
Flow Area: 7.5 ft²
Wetted Perimeter: 12.8 ft
Hydraulic Radius: 7.1 in
Top Width: 12.57 ft
Normal Depth: 12.2 in
Critical Depth: 16.2 in
Critical Slope: 0.033 ft/ft
Velocity: 8.06 ft/s
Velocity Head: 1.01 ft
Specific Energy: 2.03 ft
Froude Number: 1.835
Flow Type: Supercritical

V2ALLOW= 13 FPS



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CLAYTON C. TOCK
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PROFESSIONAL ENGINEER
07/01/22

OUTFALL ANALYSIS
DEVELOPMENT CONCEPT II
INOVA HOSPITAL CAMPUS PHASE I
BUILDINGS A, B & C
CITY OF ALEXANDRIA, VIRGINIA
DATE: JULY, 2022
SCALE: H:1"=40'; V:1"=5'
C.I.= N.A.

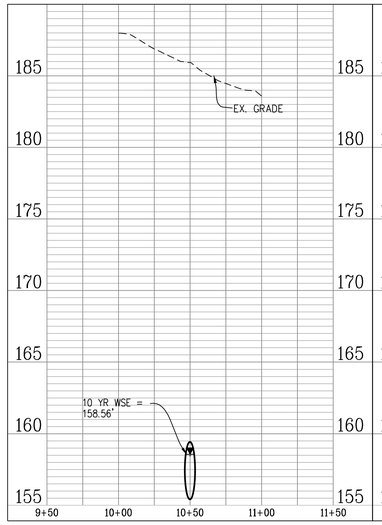
SHEET
C17.00

FILE No.
SP-13086

Urban, Ltd. - J:\JOBS\LandmarkMall\DSUP\Block-A&B&C (INOVA)\Preliminary Site Plan\13086-23-OUTFALL ANALYSIS.dwg [2 years] November 04, 2022 - 2:15pm awalia

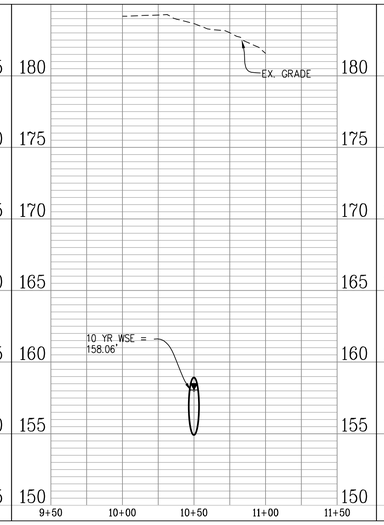
CROSS SECTION A-A': 10 YEAR STORM EVENT

Discharge: 126.27 cfs
Flow Area: 10.6 ft²
Wetted Perimeter: 8.7 ft
Hydraulic Radius: 14.6 in
Top Width: 3.26 ft
Normal Depth: 37.9 in
Critical Depth: 31.5 in
Critical Slope: 0.016 ft/ft
Velocity: 7.05 ft/s
Velocity Head: 0.77 ft
Specific Energy: 3.93 ft
Froude Number: 0.689
Maximum Discharge: 83.69 cfs
Discharge Full: 77.80 cfs
Slope Full: 0.009 ft/ft
Flow Type: Subcritical



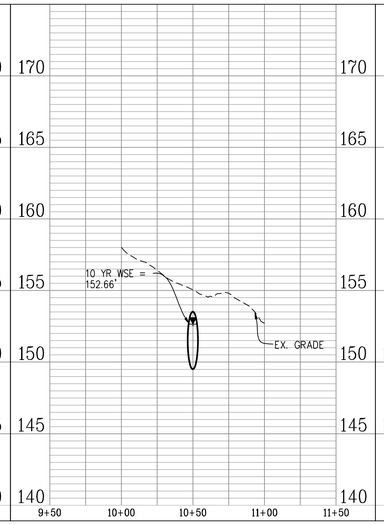
CROSS SECTION B-B': 10 YEAR STORM EVENT

Discharge: 126.27 cfs
Flow Area: 10.6 ft²
Wetted Perimeter: 8.7 ft
Hydraulic Radius: 14.6 in
Top Width: 3.26 ft
Normal Depth: 37.9 in
Critical Depth: 31.5 in
Critical Slope: 0.016 ft/ft
Velocity: 7.05 ft/s
Velocity Head: 0.77 ft
Specific Energy: 3.93 ft
Froude Number: 0.689
Maximum Discharge: 83.69 cfs
Discharge Full: 77.80 cfs
Slope Full: 0.009 ft/ft
Flow Type: Subcritical



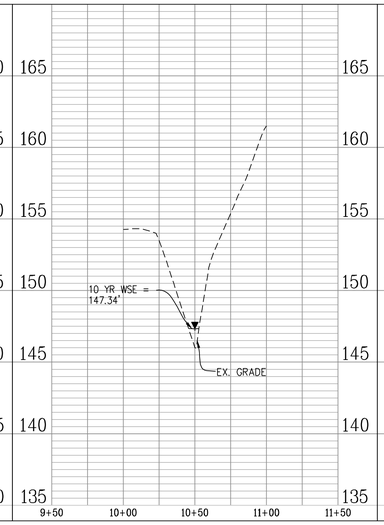
CROSS SECTION C-C': 10 YEAR STORM EVENT

Discharge: 126.27 cfs
Flow Area: 10.6 ft²
Wetted Perimeter: 8.7 ft
Hydraulic Radius: 14.6 in
Top Width: 3.26 ft
Normal Depth: 37.9 in
Critical Depth: 31.5 in
Critical Slope: 0.016 ft/ft
Velocity: 7.05 ft/s
Velocity Head: 0.77 ft
Specific Energy: 3.93 ft
Froude Number: 0.689
Maximum Discharge: 83.69 cfs
Discharge Full: 77.80 cfs
Slope Full: 0.009 ft/ft
Flow Type: Subcritical



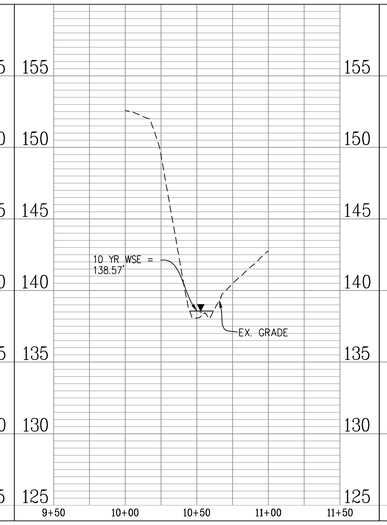
CROSS SECTION D-D': 10 YEAR STORM EVENT

Discharge: 118.46 cfs
Flow Area: 4.6 ft²
Wetted Perimeter: 7.4 ft
Hydraulic Radius: 7.4 in
Top Width: 6.86 ft
Normal Depth: 15.9 in
Critical Depth: 31.8 in
Critical Slope: 0.002 ft/ft
Velocity: 26.03 ft/s
Velocity Head: 10.53 ft
Specific Energy: 11.85 ft
Froude Number: 5.635
Flow Type: Supercritical



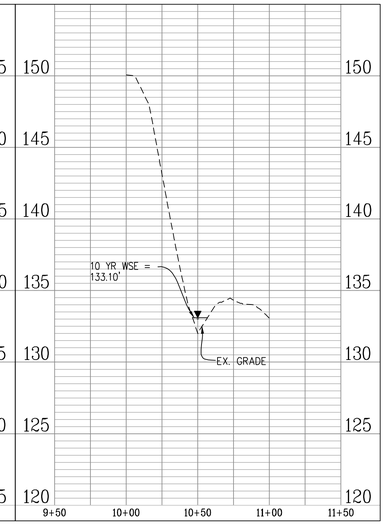
CROSS SECTION E-E': 10 YEAR STORM EVENT

Discharge: 118.46 cfs
Flow Area: 5.5 ft²
Wetted Perimeter: 15.6 ft
Hydraulic Radius: 4.2 in
Top Width: 15.42 ft
Normal Depth: 6.5 in
Critical Depth: 16.7 in
Critical Slope: 0.003 ft/ft
Velocity: 21.56 ft/s
Velocity Head: 7.22 ft
Specific Energy: 7.77 ft
Froude Number: 6.366
Flow Type: Supercritical



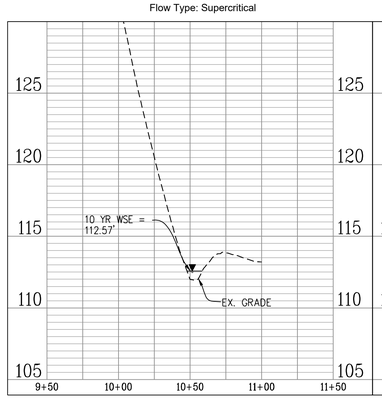
CROSS SECTION F-F': 10 YEAR STORM EVENT

Discharge: 118.46 cfs
Flow Area: 5.7 ft²
Wetted Perimeter: 10.7 ft
Hydraulic Radius: 6.4 in
Top Width: 10.44 ft
Normal Depth: 13.2 in
Critical Depth: 26.0 in
Critical Slope: 0.003 ft/ft
Velocity: 20.64 ft/s
Velocity Head: 6.62 ft
Specific Energy: 7.72 ft
Froude Number: 4.908
Flow Type: Supercritical



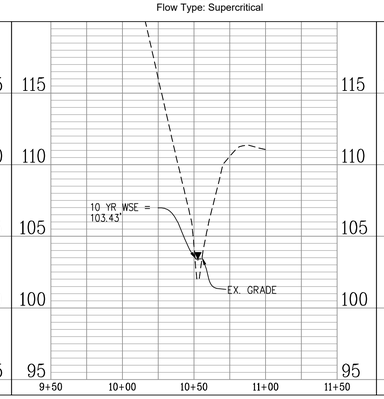
CROSS SECTION G-G': 10 YEAR STORM EVENT

Discharge: 121.50 cfs
Flow Area: 4.7 ft²
Wetted Perimeter: 10.5 ft
Hydraulic Radius: 5.3 in
Top Width: 10.39 ft
Normal Depth: 7.6 in
Critical Depth: 20.3 in
Critical Slope: 0.003 ft/ft
Velocity: 25.97 ft/s
Velocity Head: 10.48 ft
Specific Energy: 11.11 ft
Froude Number: 6.821
Flow Type: Supercritical



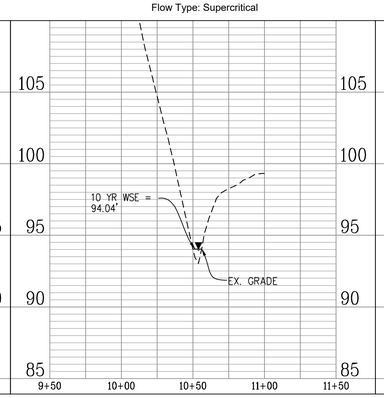
CROSS SECTION H-H': 10 YEAR STORM EVENT

Discharge: 121.50 cfs
Flow Area: 3.1 ft²
Wetted Perimeter: 5.2 ft
Hydraulic Radius: 7.2 in
Top Width: 4.27 ft
Normal Depth: 17.5 in
Critical Depth: 40.4 in
Critical Slope: 0.003 ft/ft
Velocity: 38.98 ft/s
Velocity Head: 23.61 ft
Specific Energy: 25.07 ft
Froude Number: 8.047
Flow Type: Supercritical



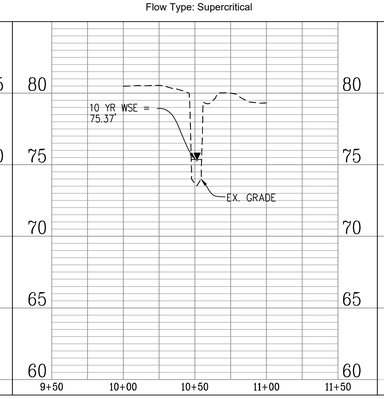
CROSS SECTION I-I': 10 YEAR STORM EVENT

Discharge: 121.50 cfs
Flow Area: 3.5 ft²
Wetted Perimeter: 6.3 ft
Hydraulic Radius: 6.5 in
Top Width: 5.96 ft
Normal Depth: 12.0 in
Critical Depth: 30.6 in
Critical Slope: 0.002 ft/ft
Velocity: 35.18 ft/s
Velocity Head: 19.23 ft
Specific Energy: 20.23 ft
Froude Number: 8.145
Flow Type: Supercritical



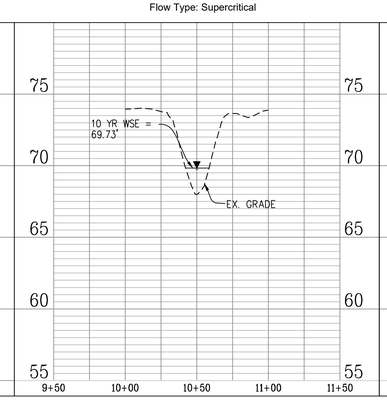
CROSS SECTION J-J': 10 YEAR STORM EVENT

Discharge: 148.84 cfs
Flow Area: 11.2 ft²
Wetted Perimeter: 9.6 ft
Hydraulic Radius: 14.0 in
Top Width: 7.37 ft
Normal Depth: 22.0 in
Critical Depth: 32.1 in
Critical Slope: 0.037 ft/ft
Velocity: 13.33 ft/s
Velocity Head: 2.76 ft
Specific Energy: 4.60 ft
Froude Number: 1.910
Flow Type: Supercritical



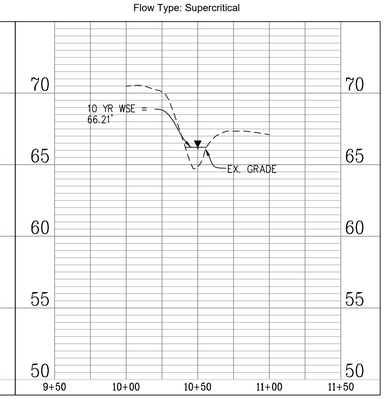
CROSS SECTION K-K': 10 YEAR STORM EVENT

Discharge: 148.84 cfs
Flow Area: 13.0 ft²
Wetted Perimeter: 14.8 ft
Hydraulic Radius: 10.6 in
Top Width: 14.37 ft
Normal Depth: 20.7 in
Critical Depth: 28.3 in
Critical Slope: 0.029 ft/ft
Velocity: 11.44 ft/s
Velocity Head: 2.03 ft
Specific Energy: 3.76 ft
Froude Number: 2.120
Flow Type: Supercritical



CROSS SECTION L-L': 10 YEAR STORM EVENT

Discharge: 148.84 cfs
Flow Area: 14.5 ft²
Wetted Perimeter: 17.0 ft
Hydraulic Radius: 10.2 in
Top Width: 16.67 ft
Normal Depth: 17.9 in
Critical Depth: 24.2 in
Critical Slope: 0.029 ft/ft
Velocity: 10.29 ft/s
Velocity Head: 1.64 ft
Specific Energy: 3.14 ft
Froude Number: 1.947
Flow Type: Supercritical



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PLAN DATE 07-01-2022

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PROFESSIONAL ENGINEER
07/01/22

OUTFALL ANALYSIS
DEVELOPMENT CONCEPT II
INOVA HOSPITAL CAMPUS PHASE I
BUILDINGS A, B & C
CITY OF ALEXANDRIA, VIRGINIA
DATE: JULY, 2022
SCALE: H:1"=40'; V:1"=5' C.I.= N.A.

SHEET
C18.00

FILE No.
SP-13086

Urban, Ltd. - J:\JOBS\LandmarkMall\OSUP\Block-A&B&C (INOVA)\Preliminary Site Plan\13086-23-OUTFALL ANALYSIS.dwg [10 years] November 04, 2022 - 2:15pm awalia

SWM ADEQUATE OUTFALL NARRATIVE:

THE EXISTING TOPOGRAPHY OF THE PARCEL HAS TWO DISTINCT OUTFALLS, RESULTING IN TWO STUDY POINTS. STUDY POINT #1 OUTFALLS TO THE NORTHEAST CORNER OF THE PROPERTY. STUDY POINT #2 OUTFALLS TO THE EAST OF THE SITE, IMMEDIATELY NORTH OF THE DUKE STREET RAMP CONNECTION TO VAN DORN STREET. A TOTAL PRE-DEVELOPMENT DRAINAGE AREA OF 35.58 ACRES DRAINS TO STUDY POINT 1, WHILE A TOTAL PRE-DEVELOPMENT DRAINAGE AREA OF 31.24 ACRES DRAINS TO STUDY POINT 2.

STORMWATER MANAGEMENT IS TO BE PROVIDED IN THREE SEPARATE STORMWATER MANAGEMENT VAULTS; VAULT 2, 3, AND 4. VAULT 2 IS LOCATED IMMEDIATELY SOUTH OF BLOCKS E&G AND HAS A DRAINAGE AREA OF 17.46 ACRES. VAULT 3 IS LOCATED SOUTH OF BLOCK I AND HAS A DRAINAGE AREA OF 20.73 ACRES. VAULT 4 IS LOCATED EACH OF THE EXISTING PARKING STRUCTURE AND HAS A DRAINAGE AREA OF 8.06 ACRES. IN ACCORDANCE WITH THE ARTICLE XIII SECTION 13-109 OF THE ALEXANDRIA ZONING ORDINANCE, AND UTILIZING THE VIRGINIA RUNOFF REDUCTION METHODOLOGY, THE TREATMENT VOLUME IS REDUCED VIA THE UNDERGROUND SWM FACILITIES.

THE ALLOWABLE RELEASE RATE FOR EACH STUDY POINT HAS BEEN CALCULATED IN ACOORDANCE WITH ARTICLE XIII SECTION 13-109(F) OF THE ALEXANDRIA ZONING ORDINANCE. FOR THE CHANNEL PROTECTION AND FLOOD PROTECTION WHEN STORMWATER FROM A DEVELOPMENT IS DISCHARGED TO A NATURAL STORMWATER CONVEYANCE SYSTEM, THE MAXIMUM PEAK FLOW RATE FROM THE 1-YEAR 24-HOUR STORM FOLLOWING THE LAND-DISTURBING ACTIVITY SHALL BE CALCULATED WHERE:

$Qdev \leq I.F. * (Qpre * RVpre)/RVdev$

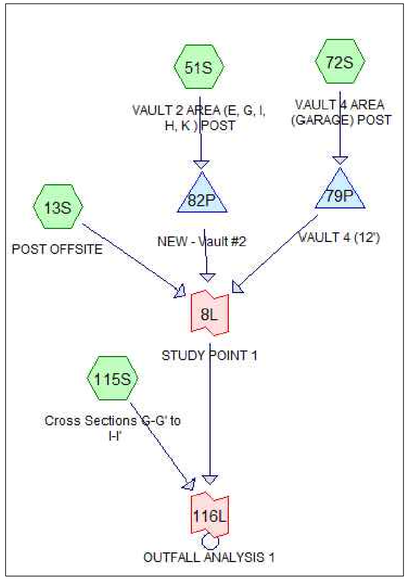
AND THE PEAK FLOW RATE FOR THE 10-YEAR 24-HOUR STORM EVENT IS LESS THAN THE PRE-DEVELOPMENT PEAK FLOW RATE FROM THE 10-YEAR 24-HOUR STORM EVENT. AS SHOWN IN THE FLOW SUMMARY TABLE ON INFRASTRUCTURE SITE PLAN (DSP#2021-00012) SHEET 123. THE PROPOSED FLOW TO THE STUDY POINTS ARE LESS THAN THE ALLOWABLE RUNOFF.

IT IS THEREFORE THE OPINION OF URBAN, LTD. THAT THE PROPOSED SWM DESIGN MEETS THE REQUIRED SWM REQUIREMENTS OF THE ALEXANDRIA ORDINANCE.

Clayton Tock

URBAN LTD.
CLAYTON C. TOCK, P.E., PRINCIPLE

POST-DEVELOPMENT NODE SUMMARIES FOR OUTFALL POINT #1



POST-DEVELOPMENT 2-YEAR OUTFALL POINT #1

Inflow Area = 1,429,944 sf , 41.25% Impervious , Inflow Depth > 2.53" for 2-yr event
Inflow = 54.39 cfs @ 12.20 hrs , Volume= 301,425 cf
Primary = 54.39 cfs @ 12.20 hrs , Volume= 301,425 cf , Atten= 0%, Lag= 0.0 min

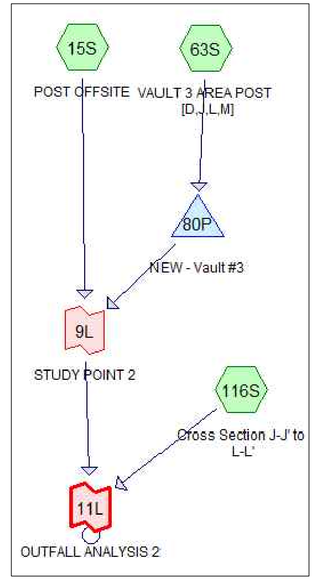
Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs

POST-DEVELOPMENT 10-YEAR OUTFALL POINT #1

Inflow Area = 1,429,944 sf , 41.25% Impervious , Inflow Depth > 4.37" for 10-yr event
Inflow = 121.50 cfs @ 12.15 hrs , Volume= 520,368 cf
Primary = 121.50 cfs @ 12.15 hrs , Volume= 520,368 cf , Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs

POST-DEVELOPMENT NODE SUMMARIES FOR OUTFALL POINT #2



POST-DEVELOPMENT 2-YEAR OUTFALL POINT #2

Inflow Area = 1,624,676 sf , 34.88% Impervious , Inflow Depth > 2.46" for 2-yr event
Inflow = 60.84 cfs @ 12.09 hrs , Volume= 332,597 cf
Primary = 60.84 cfs @ 12.09 hrs , Volume= 332,597 cf , Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs

POST-DEVELOPMENT 10-YEAR OUTFALL POINT #2

Inflow Area = 1,624,676 sf , 34.88% Impervious , Inflow Depth > 4.30" for 10-yr event
Inflow = 148.84 cfs @ 12.13 hrs , Volume= 582,638 cf
Primary = 148.84 cfs @ 12.13 hrs , Volume= 582,638 cf , Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs

OUTFALL ANALYSIS COMPUTATION SUMMARY

CROSS SECTIONS	SWALE TYPE DESCRIPTION:	AVG. CHANNEL SLOPE (%):	DRAINAGE AREA (AC):	CN FACTOR:	Tc (MIN):	ROUGHNESS COEFFICIENT:	2 YEAR FLOW (CFS):	2 YEAR VELOCITY (FPS):	2 YEAR NORMAL DEPTH (FT):	10 YEAR FLOW (CFS):	10 YEAR VELOCITY (FPS):	10 YEAR NORMAL DEPTH (FT):	CHANNEL LINING:
D-D'	EXISTING MANMADE CHANNEL-OFFSITE	0.10%	31.97	96	10*	0.013	52.77	21.26	0.98	118.46	26.03	1.33	EX. CONCRETE LINING
E-E'	EXISTING MANMADE CHANNEL-OFFSITE	0.14%	31.97	96	10*	0.013	52.77	16.10	0.40	118.46	21.56	0.54	EX. CONCRETE LINING
F-F'	EXISTING MANMADE CHANNEL-OFFSITE	0.08%	31.97	96	10*	0.013	52.77	16.86	0.81	118.46	20.64	1.10	EX. CONCRETE LINING
G-G'	EXISTING MANMADE CHANNEL-OFFSITE	0.15%	32.83	86	15*	0.013	54.39	20.25	0.43	121.50	25.97	0.63	EX. CONCRETE LINING
H-H'	EXISTING MANMADE CHANNEL-OFFSITE	0.23%	32.83	86	15*	0.013	54.39	31.88	1.08	121.50	38.98	1.46	EX. CONCRETE LINING
I-I'	EXISTING MANMADE CHANNEL-OFFSITE	0.21%	32.83	86	15*	0.013	54.39	28.15	0.72	121.50	35.18	1.00	EX. CONCRETE LINING
J-J'	EXISTING MANMADE CHANNEL-OFFSITE	0.13%	37.30	92	10*	0.045	60.84	9.96	1.13	148.84	13.33	1.83	EX. RIP RAP LINING
K-K'	EXISTING MANMADE CHANNEL-OFFSITE	0.14%	37.30	92	10*	0.045	60.84	9.01	1.23	148.84	11.44	1.73	EX. RIP RAP LINING
L-L'	EXISTING MANMADE CHANNEL-OFFSITE	0.12%	37.30	92	10*	0.045	60.84	8.06	1.02	148.84	10.29	1.49	EX. RIP RAP LINING

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07/01/22

OUTFALL ANALYSIS
DEVELOPMENT CONCEPT II
INOVA HOSPITAL CAMPUS PHASE I
BUILDINGS A, B & C
CITY OF ALEXANDRIA, VIRGINIA
DATE: JULY, 2022
SCALE: N.A. C.I.=N.A.

SHEET
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FILE No.
SP-13086

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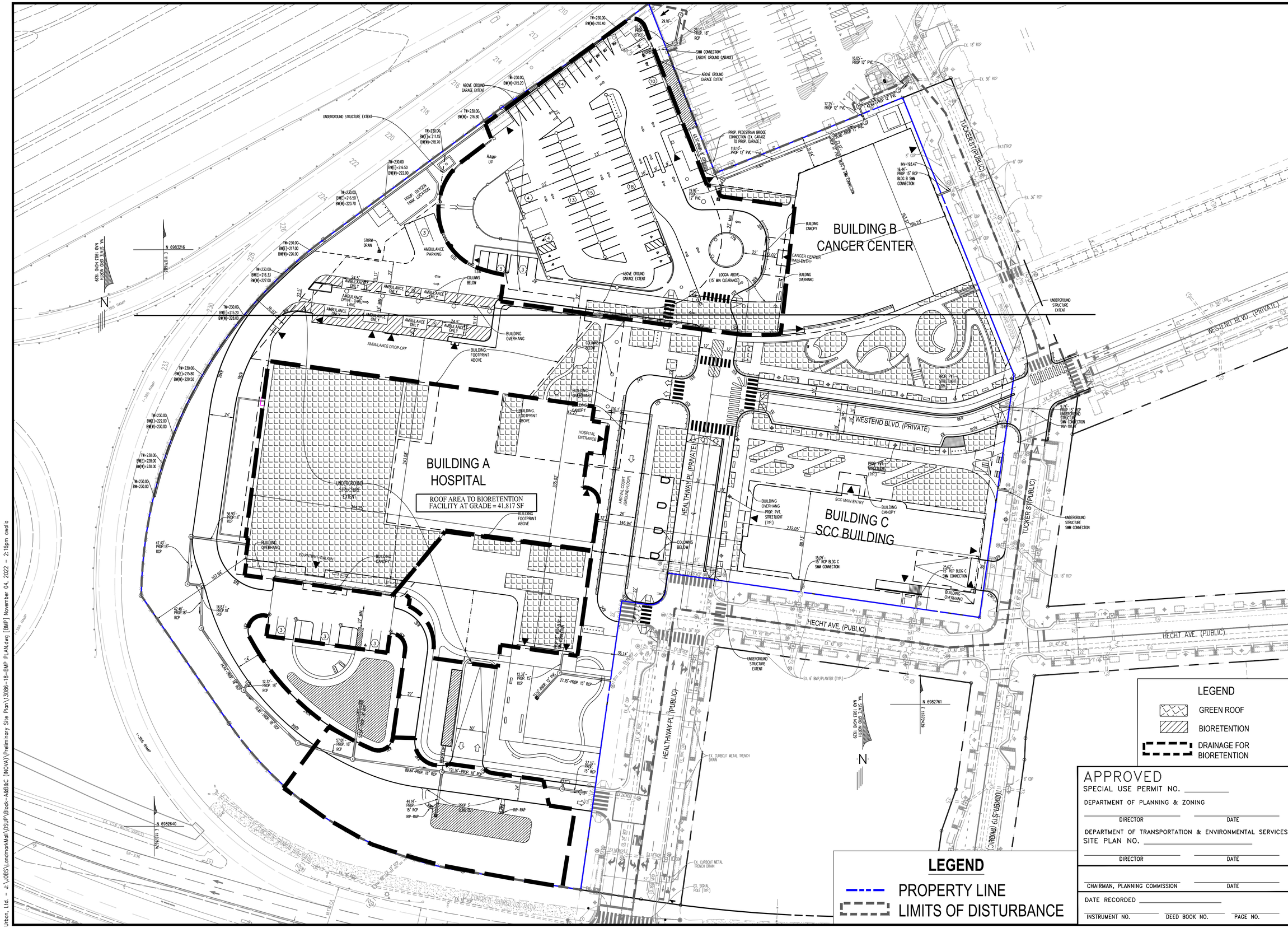

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SITE PLAN NO. _____

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CHAIRMAN, PLANNING COMMISSION _____ DATE _____

DATE RECORDED _____

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COMMONWEALTH OF VIRGINIA
CLAYTON C. TOCK
Lic. No. 036790
11/04/2022
PROFESSIONAL ENGINEER

BMP PLAN

PRELIMINARY SITE PLAN
INOVA HOSPITAL CAMPUS PHASE I

BUILDINGS A, B & C
CITY OF ALEXANDRIA, VIRGINIA

SCALE: 1"= 40' C.I.= N/A DATE: NOV, 2022

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FILE No.
SP-13086

Urban, Ltd. - J:\JOBS\LandmarkMall\DSUP\Block-A&B&C (INOVA)\Preliminary Site Plan\13086-18-BMP PLAN.dwg [BMP] November 04, 2022 - 2:16pm awalia

Post-Development Project (Treatment Volume and Loads)

Enter Total Disturbed Area *(acres)* → 11.50

Maximum reduction required:	*20%*
The site's net increase in impervious cover (acres) is:	*0*
Post-Development TP Load Reduction for Site (lb/yr):	~~3.69~~ 7.31

Check:
BMP Design Specifications List: 2013 Draft Stds & Specs
Linear project? No
Land cover areas entered correctly? ✓
Total disturbed area entered? ✓

Pre-ReDevelopment Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed forest/open space					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be					0.00
Impervious Cover (acres)				11.50	11.50
					11.50

Post-Development Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be				0.81	0.81
Impervious Cover (acres)				10.69	10.69
Area Check	**OK.**	**OK.**	**OK.**	**OK.**	11.50

Constants

Annual Rainfall (inches)	43
Target Rainfall Event (inches)	1.00
Total Phosphorus (TP) EMC (mg/L)	0.26
Total Nitrogen (TN) EMC (mg/L)	1.86
Target TP Load (lb/acre/yr)	0.41
Pj (unitless correction factor)	0.90

Runoff Coefficients (Rv)

	A Soils	B Soils	C Soils	D Soils
Forest/Open Space	0.02	0.03	0.04	0.05
Managed Turf	0.15	0.20	0.22	0.25
Impervious Cover	0.95	0.95	0.95	0.95

LAND COVER SUMMARY – PRE-REDEVELOPMENT

Land Cover Summary-Pre		
Pre-ReDevelopment	**Listed**	**Adjusted[1]**
Forest/Open Space Cover (acres)	0.00	0.00
Weighted Rv(forest)	0.00	0.00
% Forest	0%	0%
Managed Turf Cover (acres)	0.00	0.00
Weighted Rv(turf)	0.00	0.00
% Managed Turf	0%	0%
Impervious Cover (acres)	11.50	11.50
Rv(impervious)	0.95	0.95
% Impervious	100%	100%
Total Site Area (acres)	**11.50**	**11.50**
Site Rv	**0.95**	**0.95**

Treatment Volume and Nutrient Load

Pre-ReDevelopment Treatment Volume (acre-ft)	0.9104	0.9104
Pre-ReDevelopment Treatment Volume (cubic feet)	39,658	39,658
Pre-ReDevelopment TP Load (lb/yr)	**24.92**	**24.92**
Pre-ReDevelopment TP Load per acre (lb/acre/yr)	2.17	2.17
Baseline TP Load (lb/yr) (**0.41 lbs/acre/yr** applied to pre-redevelopment area excluding pervious land proposed for new impervious cover)		4.72

LAND COVER SUMMARY – POST DEVELOPMENT

Land Cover Summary-Post (Final)	
Post ReDev. & New Impervious	
Forest/Open Space Cover (acres)	0.00
Weighted Rv(forest)	0.00
% Forest	0%
Managed Turf Cover (acres)	0.81
Weighted Rv (turf)	0.25
% Managed Turf	7%
Impervious Cover (acres)	10.69
Rv(impervious)	0.95
% Impervious	93%
Final Site Area (acres)	**11.50**
Final Post Dev Site Rv	**0.90**

Land Cover Summary-Post	
Post-ReDevelopment	
Forest/Open Space Cover (acres)	0.00
Weighted Rv(forest)	0.00
% Forest	0%
Managed Turf Cover (acres)	0.81
Weighted Rv (turf)	0.25
% Managed Turf	7%
ReDev. Impervious Cover (acres)	10.69
Rv(impervious)	0.95
% Impervious	93%
Total ReDev. Site Area (acres)	**11.50**
ReDev Site Rv	**0.90**

Land Cover Summary-Post	
Post-Development New Impervious	
New Impervious Cover (acres)	0.00
Rv(impervious)	--

Treatment Volume and Nutrient Load

Final Post-Development Treatment Volume (acre-ft)	0.8632	**Post-ReDevelopment Treatment Volume (acre-ft)**	0.8632	**Post-Development Treatment Volume (acre-ft)**	--
Final Post-Development Treatment Volume (cubic feet)	37,600	**Post-ReDevelopment Treatment Volume (cubic feet)**	37,600	**Post-Development Treatment Volume (cubic feet)**	--
Final Post-Development TP Load (lb/yr)	**23.62**	**Post-ReDevelopment Load (TP) (lb/yr)***	**23.62**	**Post-Development TP Load (lb/yr)**	--
Final Post-Development TP Load per acre (lb/acre/yr)	2.05	Post-ReDevelopment TP Load per acre (lb/acre/yr)	2.05		
		Max. Reduction Required (Below Pre-ReDevelopment Load)	**20%**		
		TP Load Reduction Required for Redeveloped Area (lb/yr)	**3.69**	**TP Load Reduction Required for New Impervious Area (lb/yr)**	**0**

[1] *Adjusted Land Cover Summary:*
Pre ReDevelopment land cover minus pervious land cover (forest/open space or managed turf) acreage proposed for new impervious cover.

Adjusted total acreage is consistent with Post-ReDevelopment acreage (minus acreage of new impervious cover).

Column I shows load reduction requirement for new impervious cover (based on new development load limit, 0.41 lbs/acre/year).

Post-Development Requirement for Site Area

TP Load Reduction Required (lb/yr)	~~3.69~~ 7.31

Nitrogen Loads (Informational Purposes Only)

Pre-ReDevelopment TN Load (lb/yr)	178.25
Final Post-Development TN Load (Post-ReDevelopment & New Impervious) (lb/yr)	169.00

Drainage Area A

Drainage Area A Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals	Land Cover Rv
Forest/Open Space (acres)					0.00	0.00
Managed Turf (acres)				0.81	0.81	0.25
Impervious Cover (acres)				10.69	10.69	0.95
				Total	11.50	

Practice	Runoff Reduction Credit (%)	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	Volume from Upstream Practice (ft^3)	Runoff Reduction (ft^3)	Remaining Runoff Volume (ft^3)	Total BMP Treatment Volume (ft^3)	Phosphorus Removal Efficiency (%)	Phosphorus Load from Upstream Practices (lb)	Untreated Phosphorus Load to Practice (lb)	Phosphorus Removed By Practice (lb)	Remaining Phosphorus Load (lb)	Downstream Practice to be Employed
1. Vegetated Roof (RR)													
1.b. Vegetated Roof #2 (Spec #5)	60		1.48		3,062	2,042	5,104	0		3.20	1.92	1.28	
6. Bioretention (RR)													
6.b. Bioretention #2 or Micro-Bioretention #2 (Spec #9)	80	0.70	2.57	0	7,598	1,900	9,498	50	0.00	5.96	5.36	0.60	

*0.96 AC GREEN ROOF ROUTED TO BIORETENTION.
*0.75 LB/YR TP REMOVAL FROM GREEN ROOF ROUTED

Site Results (Water Quality Compliance)

Area Checks	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	AREA CHECK
FOREST/OPEN SPACE (ac)	0.00	0.00	0.00	0.00	0.00	OK.
IMPERVIOUS COVER (ac)	10.69	0.00	0.00	0.00	0.00	OK.
IMPERVIOUS COVER TREATED (ac)	4.05	0.00	0.00	0.00	0.00	OK.
MANAGED TURF AREA (ac)	0.81	0.00	0.00	0.00	0.00	OK.
MANAGED TURF AREA TREATED (ac)	0.70	0.00	0.00	0.00	0.00	OK.
AREA CHECK	OK.	OK.	OK.	OK.	OK.	

Site Treatment Volume (ft^3) 37,600

Runoff Reduction Volume and TP By Drainage Area

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	TOTAL
RUNOFF REDUCTION VOLUME ACHIEVED (ft^3)	10,661	0	0	0	0	10,661
TP LOAD AVAILABLE FOR REMOVAL (lb/yr)	23.62	0.00	0.00	0.00	0.00	23.62
TP LOAD REDUCTION ACHIEVED (lb/yr)	7.29	0.00	0.00	0.00	0.00	7.29
TP LOAD REMAINING (lb/yr)	16.34	0.00	0.00	0.00	0.00	16.34
NITROGEN LOAD REDUCTION ACHIEVED (lb/yr)	52.98	0.00	0.00	0.00	0.00	52.98

Total Phosphorus

FINAL POST-DEVELOPMENT TP LOAD (lb/yr)	23.62
TP LOAD REDUCTION REQUIRED (lb/yr)	~~3.69~~ 7.31
TP LOAD REDUCTION ACHIEVED (lb/yr)	~~7.29~~ +0.75 LB/YR= 8.04 LB/YR
TP LOAD REMAINING (lb/yr):	16.34
REMAINING TP LOAD REDUCTION REQUIRED (lb/yr):	0.00 **

** TARGET TP REDUCTION EXCEEDED BY ~~3.6~~ LB/YEAR ** 0.73 LB/YEAR

Total Nitrogen (For Information Purposes)

POST-DEVELOPMENT LOAD (lb/yr)	169.00
NITROGEN LOAD REDUCTION ACHIEVED (lb/yr)	52.98
REMAINING POST-DEVELOPMENT NITROGEN LOAD (lb/yr)	116.02

BMP NARRATIVE

STORMWATER BEST MANAGEMENT PRACTICES FOR THE SUBJECT SITE ARE BEING PROVIDED IN ACCORDANCE WITH VA DEQ AND CITY OF ALEXANDRIA STANDARDS BY USING THE VIRGINIA RUNOFF REDUCTION METHOD (VRRM) TO MEET THE WATER QUALITY CRITERIA

THE PHOSPHOROUS LOAD REDUCTION REQUIRED BY THE VRRM WILL BE SATISFIED WITH THE UTILIZATION OF TWO (2) STORMWATER BEST MANAGEMENT PRACTICE (BMP) FACILITIES IN CONFORMANCE WITH THE STORMWATER BMP CLEARINGHOUSE WEBSITE. THE TWO (2) BMP FACILITIES PROPOSED ARE:

- VEGETATED ROOF (LEVEL 2)
- URBAN BIORETENTION – BIORETENTION FACILITY (LEVEL 2)

BASED ON THE SUBJECT SITE'S PROPOSED LAND COVER, AND THE OVERALL SITE ANALYSIS AS OUTLINED IN THE MASTER SWM PLAN (SWM#2021-00017) THE TOTAL PHOSPHOROUS LOAD REDUCTION REQUIRED TO BE REMOVED IS 7.31 LBS/YEAR. THE TOTAL PHOSPHOROUS LOAD REDUCTION ACHIEVED IS 8.04 LBS/YEAR, THEREFORE THE TOTAL PHOSPHOROUS LOAD REDUCTION IS EXCEEDED BY 0.73 LBS/YEAR.

NOTE:
ALL STORMWATER BMP FACILITIES AND COMPUTATIONS SHOWN ON THE PLANS ARE FOR ILLUSTRATIVE PURPOSES ONLY.

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DEPARTMENT OF PLANNING & ZONING
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DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____
DIRECTOR _____ DATE _____
CHAIRMAN, PLANNING COMMISSION _____ DATE _____
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INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO. _____

REVISIONS | No. | DATE | DESCRIPTION

PLAN DATE 07-01-2022

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COMMONWEALTH OF VIRGINIA CLAYTON C. TOCK Lic. No. 038780 ENGINEER PROFESSIONAL 07/01/22

BMP COMPS & NARRATIVE
DEVELOPMENT CONCEPT II
INOVA HOSPITAL CAMPUS PHASE I
CITY OF ALEXANDRIA, VIRGINIA
C.I.= N/A
DATE: JULY, 2022
SCALE: N/A

SHEET C21.00

FILE No. SP-13086

Urban, Ltd. – J:\JOBS\LandmarkMall\DSUP\Block-A&B&C (INOVA)\Preliminary Site Plan\13086-13-BMP COMPS & NARRATIVE.dwg [Proposed] November 04, 2022 – 2:16pm awalo

PROPOSED BMP COMPUTATIONS

Project Description

Development or Redevelopment

Drainage Area	Impervious	Pervious	Total
Site Area	10.69 ACRES	0.81 ACRES	11.50 ACRES
On-Site Treated	4.05 ACRES	0.70 ACRES	4.75 ACRES
Off-Site Treated	0 ACRES	0 ACRES	0 ACRES
Total Treated	4.05 ACRES	0.70 ACRES	4.75 ACRES
Any On-Site Disconnected by a Vegetated Buffer (25 ft)	0 ACRES		
Total On-Site Treated or Disconnected			4.75 ACRES

Water Treatment on site

BMP Type	*Area treated by BMP (acres)*	*Impervious area treated by BMP (acres)*	*BMP efficiency (%)*
BIORETENTION	3.27 ACRES	2.57 ACRES	50 %
GREEN ROOF	*1.48 ACRES	1.48 ACRES	60 %

*0.96 ACRES GREEN ROOF ROUTED TO BIORETENTION

Miscellaneous

Total WQV treated: yes no
Detention on site: yes no

Project is within which watershed? HOLMES RUN WATERSHED

Project discharges to which body of water? HOLMES RUN

PROPOSED WQV TREATMENT:

TOTAL SITE IMPERVIOUS AREA = 10.69 AC OR 465,657 SF

SITE WQV REQUIRED = 7.31 TP REMOVAL PER YEAR REQUIRED (PER MASTER SWM PLAN #2021-00017) = 5,104 CF (VECETATED ROOF LEVEL 2) + 9,550 CF (URBAN BIORETENTION LEVEL 2) = 14,654 CF
SITE WQV PROPOSED = 5,104 CF (GREEN ROOF TV) + 9,498 CF (BIORETENTION TV) + 1,324 CF (TREATMENT TRAIN TV)= 15,926 CF (SEE SHEET C21.00 FOR TOTAL BMP TREATMENT VOLUME VALUES)

NOTE:
ALL STORMWATER BMP FACILITIES AND COMPUTATIONS SHOWN ON THE PLANS ARE FOR ILLUSTRATIVE PURPOSES ONLY.

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COMMONWEALTH OF VIRGINIA
CLAYTON C. TOCK
Lic. No. 036790
PROFESSIONAL ENGINEER
07/01/22

WQVD BMP DATA BLOCKS

DEVELOPMENT CONCEPT II
INOVA HOSPITAL CAMPUS PHASE I
CITY OF ALEXANDRIA, VIRGINIA

DATE: JULY, 2022
C.I.= N/A
SCALE: N/A

SHEET
C22.00

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NOTES

1. RESIDENTIAL AREA SANITARY FLOW IS COMPUTED AT THE RATE OF 300 GPD PER UNIT
2. EACH RESIDENTIAL UNIT IS BASED ON A 1,000 G.S.F. FLOOR PLATE
3. RETAIL AND OFFICE AREA SANITARY FLOW IS COMPUTED AT THE RATE OF 200 GPD PER 1,000 S.F. OF NET FLOOR AREA
4. ALL PIPE DATA HAS BEEN OBTAINED BY FIELD SURVEY PERFORMED BY URBAN, LTD.
5. CONTRACTOR SHALL ENSURE ALL DISCHARGES ARE IN ACCORDANCE WITH CITY OF ALEXANDRIA CODE TITLE 5, CHAPTER 6, ARTICLE B.
6. DEWATERING AND OTHER CONSTRUCTION RELATED DISCHARGE LIMITS TO THE SEWER SYSTEM ARE REGULATED BY ALEXRENEW PRETREATMENT. CONTRACTOR IS REQUIRED TO CONTACT ALEXRENEW'S PRETREATMENT COORDINATOR AT 703-721-3500 X2020.
7. THE APPLICANT SHALL PROVIDE A PRE- AND POST-CCTV INSPECTION OF MANHOLE CONNECTION BY A NASSCO MACP CERTIFIED TECHNICIAN.
8. INSUFFICIENT PIPE CAPACITIES OF EXISTING SANITARY SEWER ARE SHOWN ON SHEET 23. THOSE PIPES ARE SHOWN TO BE REMOVED AND REPLACED WITH APPROPRIATELY SIZED PIPES ON SHEET 23.
9. HGL ANALYSIS WILL BE PROVIDED WITH THE FINAL INFRASTRUCTURE SITE PLAN.
10. THE PROJECT SITE IS LOCATED WITHIN THE HOLMES RUN TRUNK SEWER SHED. THE PROJECT SITE IS NOT LOCATED IN THE COMBINED SEWER SYSTEM AREA.

SCALE : 1"=50'

HOLMES RUN TRUNK SEWER (FAIRFAX COUNTY OWNED)

HOLMES RUN TRUNK SEWER (ALEX RENEW OWNED)

002474SSMH (TO REMAIN) TIE TO AN EX. SAN. SEWER MANHOLE

SMH TOP=85.25
EX. INV IN =70.63
EX. INV OUT =70.62

SMH TOP=85.83
EX. INV IN 30"=68.92
EX. INV OUT 30"=68.91
EX. INV IN EXIS. 12"=68.92

009275SEWP (TO BE REPLACED)
BROAD STONE VAN DORN LATERAL IN = 98.16

EXIS. 14" PVC SAN.

001804SEWP (TO BE REPLACED)

007604SSMH (TO REMAIN)

HOLMES RUN TRUNK SEWER (ALEX RENEW OWNED)

EX. 33" SANITARY SEWER (COA)

EX. 30" SANITARY SEWER (FAIRFAX COUNTY)

HOLMES RUN TRUNK SEWER (FAIRFAX COUNTY OWNED)

002467SSMH (TO REMAIN)

NORTH VAN DORN STREET

DUKE STREET

HENRY G. SHIRLEY MEMORIAL HIGHWAY

No.	DATE	DESCRIPTION
		REVISIONS

PLAN DATE
11-04-2022

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COMMONWEALTH OF VIRGINIA
CLAYTON C. TOCK
Lic. No. 036790
PROFESSIONAL ENGINEER
11/04/2022

SANITARY SEWER PLAN

PRELIMINARY SITE PLAN
INOVA HOSPITAL CAMPUS PHASE I

BUILDINGS A, B & C
CITY OF ALEXANDRIA, VIRGINIA

SCALE: 1"=100' C.I.= 2' DATE: NOV. 2022

APPROVED

SPECIAL USE PERMIT NO. _____

DEPARTMENT OF PLANNING & ZONING

_____ DIRECTOR _____ DATE

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES

SITE PLAN NO. _____

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PROPOSED SANITARY SEWER FLOW COMPUTATIONS

Project: West End

From Point	To Point	RESIDENTIAL 300 GPD/UNIT	OFFICE/RETAIL 200 GPD/ 1000 SF	SFA/SFD DWELLINGS 350 GPD/UNIT	HOTEL 130 GPD/UNIT	PEAK FACTOR	INCR q MGD	FLOW q MGD	FLOW q C.F.S.	Invert Elevation Upper End	Invert Elevation Lower End	Length FT.	Slope %	Dia. IN.	Capacity Q MGD	VEL. F.P.S.	Capacity q/Q %	Pipe Coefficient	Pipe Material	BLOCKS TO STR	Remarks
L6	L5		189743			4.0	0.15	0.15	0.23	190.38	190.18	19.63	1.00%	10	1.85	3.22	8.22	0.010	PVC		33.34% Flow from Block A
L5	L4					4.0	0.00	0.15	0.23	190.08	189.84	47.79	0.50%	10	1.31	2.53	11.63	0.010	PVC		
L4	L3					4.0	0.00	0.15	0.23	189.74	189.26	96.24	0.50%	10	1.31	2.53	11.63	0.010	PVC		
L3	L2					4.0	0.00	0.15	0.23	189.16	189.07	17.58	0.50%	10	1.31	2.53	11.63	0.010	PVC		
L2	N1					4.0	0.00	0.15	0.23	188.97	188.53	87.06	0.50%	10	1.31	2.53	11.63	0.010	PVC		
N1	EX.NN					4.0	0.00	0.15	0.23	188.43	188.02	82.58	0.50%	10	1.31	2.53	11.63	0.010	PVC		
EX.NN	EX.MM					4.0	0.00	0.15	0.23	187.92	186.84	223.82	0.46%	10	0.96	2.02	15.76	0.013	RCP		
EX.MM	EX.LL					4.0	0.31	0.46	0.71	186.81	185.94	74.55	1.17%	10	1.54	3.81	29.96	0.013	RCP		100% Flow from Block E (Res.)
EX.LL	EX.KK					4.0	0.00	0.46	0.71	185.71	185.14	122.64	0.46%	10	0.96	2.72	47.78	0.013	RCP		
EX.KK	L1					4.0	0.00	0.46	0.71	185.10	184.27	145.48	0.57%	10	1.07	2.93	42.92	0.013	RCP		
L1	EX.JJ					4.0	0.31	0.77	1.19	184.27	184.09	31.95	0.57%	10	1.07	1.97	72.01	0.013	RCP		100% Flow from Block G
EX.JJ	EX.II					4.0	0.00	0.77	1.19	184.01	181.16	259.55	1.10%	10	1.49	4.27	51.84	0.013	RCP		
EX.II	EX.HH					4.0	0.54	1.31	2.03	180.86	160.37	165.68	12.37%	10	4.99	11.95	26.27	0.013	RCP		
EX.HH	EX. GG					4.0	0.00	1.31	2.03	160.03	134.41	111.27	23.02%	10	6.81	14.93	19.26	0.013	RCP		
EX. GG	EX. FF					4.0	0.00	1.31	2.03	134.24	132.08	28.12	7.68%	12	6.40	9.89	20.50	0.013	RCP		
EX. FF	EX. EE					4.0	2.63	3.94	6.10	129.77	119.03	222.04	4.84%	12	5.08	6.47	77.59	0.013	RCP		100% Flow from Landmark Mall
EX. EE	D1					4.0	0.00	3.94	6.10	118.81	97.75	299.39	7.03%	12	6.12	12.80	64.38	0.013	RCP		
D1	D2	184				4.0	0.22	4.16	6.44	97.45	88.48	60.98	14.71%	12	8.86	17.17	47.00	0.013	RCP		100% Flow from Broadstone Appt
D2	D3					4.0	0.00	4.16	6.44	88.38	86.95	119.11	1.20%	15	5.96	4.86	69.81	0.010	PVC		
D3	D4					4.0	0.00	4.16	6.44	86.85	86.34	68.07	0.75%	15	4.71	3.84	88.31	0.010	PVC		
D4	EX.CC					4.0	0.00	4.16	6.44	76.45	74.96	74.40	2.00%	15	7.70	9.89	54.08	0.010	PVC		
W1	W		189686			4.0	0.15	0.15	0.23	195.87	195.04	66.50	1.25%	12	2.80	3.00	5.43	0.012	DIP		33.33% Flow from Block A
W	V					4.0	0.00	0.15	0.23	194.94	193.28	132.42	1.25%	12	2.80	3.00	5.43	0.012	DIP		
V	U		-			4.0	0.15	0.30	0.47	193.18	192.28	72.26	1.25%	12	2.80	3.60	10.85	0.012	DIP		
U	L					4.0	0.00	0.30	0.47	192.18	191.00	94.64	1.25%	12	2.80	3.60	10.85	0.012	DIP		
L	K		-			4.0	0.02	0.33	0.50	190.90	189.43	117.14	1.25%	12	2.80	3.68	11.63	0.012	DIP		Flow from Block C
K	J		-			4.0	0.02	0.35	0.54	189.33	188.68	52.56	1.25%	12	2.80	3.74	12.41	0.012	DIP		Flow from Block C
J	I1					4.0	0.00	0.35	0.54	188.58	187.98	47.70	1.25%	12	2.80	3.74	12.41	0.012	DIP		
I1	I					4.0	0.40	0.75	1.16	187.88	184.77	248.57	1.25%	12	3.36	5.33	22.36	0.010	PVC		Flow from Block D
I	H1					4.0	0.55	1.30	2.01	184.67	181.21	276.69	1.25%	12	3.36	6.20	38.76	0.010	PVC		Flow from Block J 50% Flow from Block H
H1	H					4.0	0.32	1.62	2.51	181.11	180.05	85.17	1.25%	12	3.36	6.55	48.31	0.010	PVC		Flow from Block L
H	G					4.0	0.00	1.62	2.51	179.95	178.24	170.85	1.00%	12	3.00	6.03	54.02	0.010	PVC		
G	F					4.0	0.00	1.62	2.51	178.14	177.12	102.02	1.00%	12	2.50	3.19	64.82	0.012	DIP		
F	E					4.0	0.00	1.62	2.51	177.02	175.39	163.39	1.00%	12	2.50	3.19	64.82	0.012	DIP		
E	D					4.0	0.67	2.29	3.55	175.29	173.78	151.17	1.00%	12	2.50	3.19	91.60	0.012	DIP		Flow from Block M Flow from Block K
D	C					4.0	0.00	2.29	3.55	173.68	173.33	34.58	1.00%	12	2.50	3.19	91.60	0.012	DIP		
C	C1					4.0	0.34	2.63	4.07	173.23	169.69	283.19	1.25%	12	2.80	3.56	94.01	0.012	DIP		Flows from SSMH M & D
C1	B					4.0	0.00	2.63	4.07	167.31	166.01	103.81	1.25%	12	2.80	3.56	94.01	0.012	DIP		
B	A3					4.0	0.00	2.63	4.07	159.62	156.00	62.19	5.82%	12	7.24	13.12	36.30	0.010	PVC		
A3	A2					4.0	0.00	2.63	4.07	155.90	149.48	110.30	5.82%	12	7.24	13.12	36.30	0.010	PVC		
A2	A1					4.0	0.00	2.63	4.07	149.38	142.97	109.92	5.82%	12	7.24	13.12	36.30	0.010	PVC		
A1	A					4.0	0.00	2.63	4.07	141.21	133.16	138.24	5.82%	12	7.24	13.12	36.30	0.010	PVC		
A	EX. FF					4.0	0.00	2.63	4.07	133.06	129.87	54.80	5.82%	12	7.24	13.12	36.31	0.010	PVC		
R	R1					4.0	0.03	0.03	0.05	196.13	194.56	62.62	2.50%	10	2.92	2.71	1.10	0.010	PVC		Flow from Block B
R1	Q					4.0	0.06	0.09	0.14	194.46	190.91	142.21	2.50%	12	3.96	3.10	2.24	0.012	DIP		Flow from Block B
Q	P					4.0	0.02	0.11	0.17	190.81	188.98	91.68	2.00%	12	3.54	3.18	3.14	0.012	DIP		Flow from Block C
P	O					4.0	0.00	0.11	0.17	188.88	186.01	143.07	2.00%	12	3.54	3.18	3.14	0.012	DIP		
O	N					4.0	0.23	0.34	0.52	185.91	178.40	375.50	2.00%	12	3.54	4.39	9.55	0.012	DIP		50% Flow from Block H
N	M					4.0	0.00	0.34	0.52	178.30	175.93	118.87	2.00%	12	3.54	4.39	9.55	0.012	DIP		
M	C					4.0	0.00	0.34	0.52	175.83	175.43	19.86	2.00%	12	3.54	4.39	9.55	0.012	DIP		
CO1	I	175	21000			4.0	0.23	0.23	0.35	185.75	184.92	33.00	2.50%	6	0.75	5.22	30.34	0.010	PVC		50% Flow from Block H
CO2	Q		28129			4.0	0.02	0.02	0.03	191.77	190.91	28.85	3.00%	8	1.47	2.76	1.53	0.012	DIP		34% Flow from Block C
CO3	O	175	21000			4.0	0.23	0.23	0.35	187.39	186.11	51.00	2.50%	6	0.62	4.57	36.41	0.012	DIP		50% Flow from Block H
CO4	K		27302			4.0	0.02	0.02	0.03	195.00	194.00	33.00	3.03%	6	0.82	2.90	2.65	0.010	PVC		33% Flow from Block C
CO5	L		27302			4.0	0.02	0.02	0.03	195.00	194.00	33.00	3.03%	6	0.82	2.90	2.65	0.010	PVC		33% Flow from Block C
CO6	D	337	32000			4.0	0.43	0.43	0.67	175.39	174.40	39.66	2.50%	6	0.62	3.17	69.03	0.012	DIP		100% Flow from Block K
CO7	I	235	52000			4.0	0.32	0.32	0.50	185.79	184.87	36.86	2.50%	6	0.75	5.66	43.29	0.010	PVC		100% Flow from Block J
CO8	H1	260	11000			4.0	0.32	0.32	0.50	182.48	181.31	46.81	2.50%	6	0.75	5.61	42.91	0.010	PVC		100% Flow from Block L
CO9	E	200				4.0	0.24	0.24	0.37	185.22	184.10	44.91	2.50%	6	0.75	5.23	32.11	0.010	PVC		100% Flow from Block M
CO10	R		39999			4.0	0.03	0.03	0.05	196.77	196.13	25.44	2.50%	8	1.61	3.00	1.99	0.010	PVC		36.09% Flow from Block B
CO11	I2	336				4.0	0.40	0.40	0.62	189.27	188.67	24.00	2.50%	8	1.61	5.96	25.04	0.010	PVC		100% Flow from Block D
I2	I1					4.0	0.00	0.40	0.62	188.57	188.08	48.93	1.00%	8	1.02	4.25	39.57	0.010	PVC		
CO12	EX.MM	146	56568			4.0	0.22	0.22	0.34	182.49	181.52	38.79	2.50%	6	2.00	5.14	11.02	0.010	PVC		100% Flow from Block E (Res.)
CO13	L1	244	23866			4.0	0.31	0.31	0.48	179.06	177.17	75.43	2.50%	6	2.00	5.64	15.59	0.010	PVC		100% Flow from Block G
CO14	EX.II	390	90141			4.0	0.54	0.54	0.84	173.17	171.27	76.18	2.50%	6	0.75	3.81	72.25	0.010	PVC		100% Flow from Block I
CO16	EX.MM		109920			4.0	0.09	0.09	0.14	185.50	183.79	68.32	2.50%	6	0.75	3.88	11.76	0.010	PVC		100% Flow from Block E1 (MOB)
CO30	R1		70832			4.0	0.06	0.06	0.09	195.19	194.56	25.11	2.50%	8	1.61	3.19	3.52	0.010	PVC		63.91% Flow from Block B
V1	V		189686			4.0	0.15	0.15	0.23	194.05	193.38	66.50	1.00%	12	2.50	2.79	6.07	0.012	DIP		33.33% Flow from Block A

ADEQUATE OUTFALL ANALYSIS

Blocks		Office Sanitary Flow	Office G.S.F	Retail Sanitary Flow	Retail G.S.F	MFH Sanitary Flow	MFH Units	Total Proposed Sanitary Flow (GPD)
HOSPITAL CAMPUS	A	200GPD/1,000 S.F.	569,114	200GPD/1,000 S.F.		300GPD/UNIT	-	113,823
	B	200GPD/1,000 S.F.	110,831	200GPD/1,000 S.F.	-	300GPD/UNIT	-	22,166
	C	200GPD/1,000 S.F.	82,733	200GPD/1,000 S.F.	-	300GPD/UNIT	-	16,547
Total			762,678		-		-	152,536
				TOTAL FLOW FROM HOSPITAL CAMPUS (MGD)				0.61
LANDMARK	D	200GPD/1,000 S.F.	-	200GPD/1,000 S.F.	-	300GPD/UNIT	336	100,800
	E	200GPD/1,000 S.F.	109,920	200GPD/1,000 S.F.	56,568	300GPD/UNIT	146	77,098
	G	200GPD/1,000 S.F.	-	200GPD/1,000 S.F.	23,866	300GPD/UNIT	244	77,973
	H	200GPD/1,000 S.F.	-	200GPD/1,000 S.F.	42,000	300GPD/UNIT	350	113,400
	I	200GPD/1,000 S.F.	-	200GPD/1,000 S.F.	90,141	300GPD/UNIT	390	135,028
	J	200GPD/1,000 S.F.	52000			300GPD/UNIT	235	80,900
	K	200GPD/1,000 S.F.	-	200GPD/1,000 S.F.	32,000	300GPD/UNIT	337	107,500
	L	200GPD/1,000 S.F.	-	200GPD/1,000 S.F.	11,000	300GPD/UNIT	260	80,200
	M	200GPD/1,000 S.F.	-	200GPD/1,000 S.F.	-	300GPD/UNIT	200	60,000
Total			161,920		255,575		2,498	832,899
				TOTAL FLOW FROM LANDMARK MALL BLOCKS (MGD)				3.33
EX. BUILDING	MULTI-FAMILY USE	200GPD/1,000 S.F.	-	200GPD/1,000 S.F.	-	300GPD/UNIT	184	55,200.00
				TOTAL FLOW FROM BROADSTONE APPT				0.22
				TOTAL FLOW GOING TO EX. CC (MGD)				4.16

Landmark Mall Breakdown by Manhole

	Block	Lateral #	Lateral Tie In Location	% of Block Flow	MH Flow Enters in
HOSPITAL	A	1	SMH W1	33.33%	W
		2	SMH V1	33.33%	V
		3	L6	33.34%	L5
	B	1	CO10	36.09%	R
		2	CO30	63.91%	R1
	C	1	CO5	33.00%	L
		2	CO4	33.00%	K
	(Garage)	3	CO2	34.00%	Q
LANDMARK	D	1	CO11	100%	I2
	E	1	CO16	100%	EX. MM
		2	CO12	100%	EX. MM
	G	1	CO13	100%	EX. JJ
	H	1	CO1	50%	I
		2	CO3	50%	O
	I	1	CO14	100%	EX. II
	J	1	CO7	100%	I
	K	1	CO6	100%	D
	L	1	CO8	100%	H1
	M	1	CO9	100%	E

SANITARY SEWER ADEQUATE OUTFALL NARRATIVE:

THE INOVA HOSPITAL CAMPUS (BLOCKS A,B,C) PROPOSED 12" LATERALS CONNECT TO EXISTING MANHOLES V, AND W. THE INOVA HOSPITAL CAMPUS PROPOSED 6" LATERALS CONNECT TO EXISTING MANHOLES K, L, L5, Q, R AND R1. THE OVERALL DEVELOPMENT CONNECTS TO AN EXISTING M.H. "HH" THEN TIES TO AN EXISTING M.H. CC AT HOLMES RUN TRUNK. APPROXIMATELY 2,315 AND 2,570 FEET FROM THE INOVA HOSPITAL CAMPUS CONNECTIONS MARKS THE END OF THE ANALYSIS IN ACCORDANCE WITH SECTION MEMORANDUM TO INDUSTRY NO. 06-14 AS THE LINE THEN CONNECTS WITH AN EXISTING 33" LINE. THE PROPOSED SITE, INOVA HOSPITAL CAMPUS,, WILL UTILIZE EXISTING SMHS V, W, L, K, Q, R AND R1 AS A CONNECTION POINT TO THE SANITARY SYSTEM AS SHOWN ON SHEET C23.00. A TOTAL OF 762,678 GSF OF OFFICE HAS BEEN INCLUDED.

NOTE: WHERE VELOCITIES IN SANITARY SEWER PIPES EXCEED THE MAXIMUM ALLOWABLE VELOCITY OF 10 FT/S, SPECIAL PROVISIONS SHALL BE MADE TO RESTRAIN THE PIPE TO PROTECT AGAINST DISPLACEMENT BY EROSION.

APPROVED

SPECIAL USE PERMIT NO. _____

DEPARTMENT OF PLANNING & ZONING

_____ DIRECTOR _____ DATE

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES

SITE PLAN NO. _____

_____ DIRECTOR _____ DATE

_____ CHAIRMAN, PLANNING COMMISSION _____ DATE

DATE RECORDED _____

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PLAN DATE 11-04-2022

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COMMONWEALTH OF VIRGINIA — CLAYTON C. TOCK — Lic. No. 038790 — 11/04/2022 — PROFESSIONAL ENGINEER

SANITARY SEWER COMPUTATIONS

PRELIMINARY SITE PLAN

INOVA HOSPITAL CAMPUS PHASE I

BUILDINGS A, B & C

CITY OF ALEXANDRIA, VIRGINIA

DATE: NOV, 2022

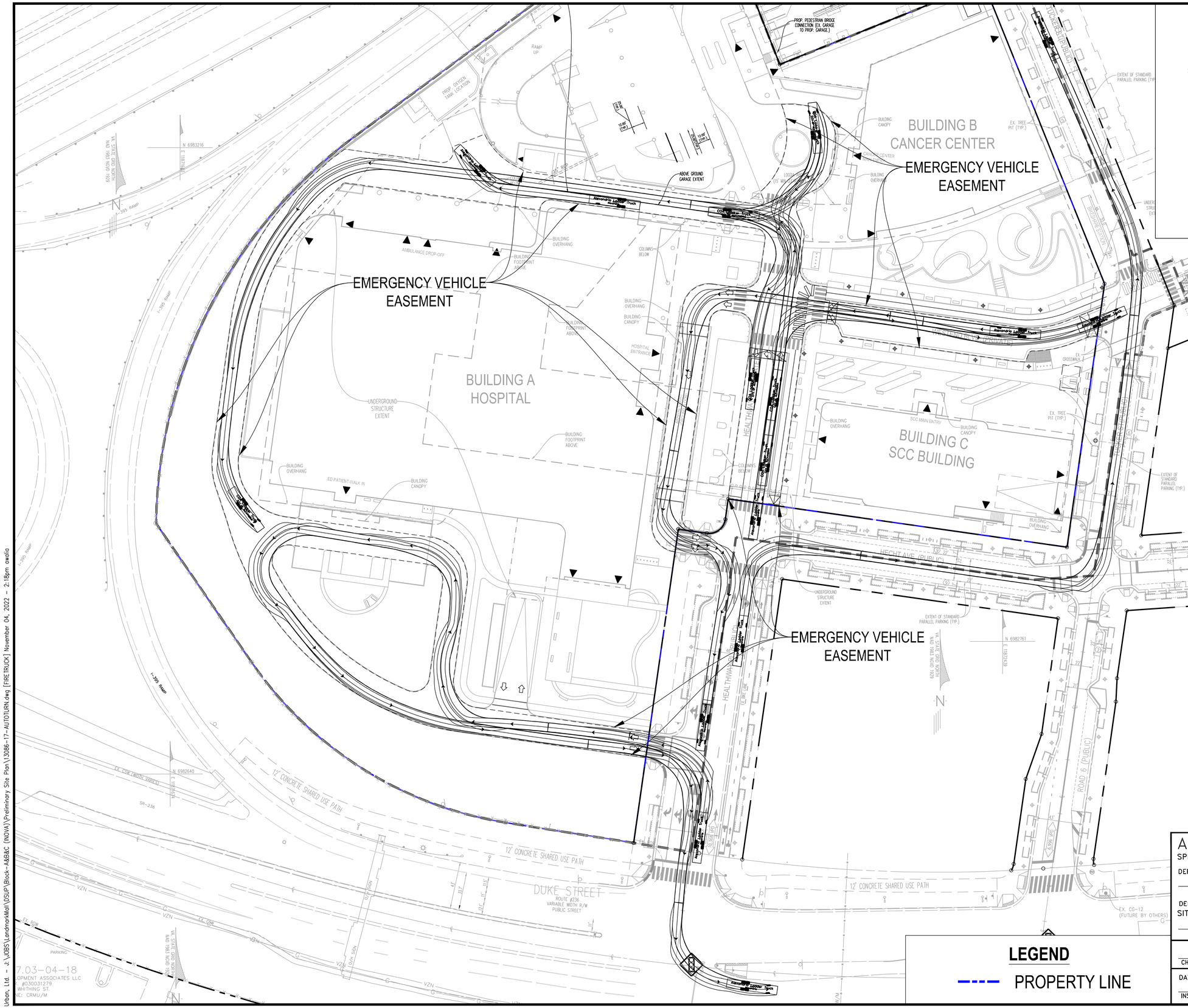
C.I.= N/A

SCALE: N/A

SHEET C24.00

FILE No. SP-13086

Urban, Ltd. – J:\JOBS\LandmarkMall\DSUP\Block-A&B&C (INOVA)\Preliminary Site Plan\13086-07-SAN PLAN & CMPS.dwg [Comps] November 04, 2022 - 2:17pm owolla



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PROFESSIONAL ENGINEER
11/04/2022

AUTOTURN EXHIBIT

PRELIMINARY SITE PLAN
INOVA HOSPITAL CAMPUS PHASE I

BUILDINGS A, B & C
CITY OF ALEXANDRIA, VIRGINIA

DATE: NOV, 2022
SCALE: 1"= 40'
C.I.= N/A

APPROVED
SPECIAL USE PERMIT NO. _____
DEPARTMENT OF PLANNING & ZONING
DIRECTOR _____ DATE _____
DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____
DIRECTOR _____ DATE _____
CHAIRMAN, PLANNING COMMISSION _____ DATE _____
DATE RECORDED _____
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SHEET
C25.00

FILE No.
SP-13086

7.03-04-18
OPMENT ASSOCIATES LLC
#030031279
WHITHING ST.
E: CRMU/M

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ABOVE GROUND
GARAGE EXTENT

LOGGIA ABOVE
(15' MIN CLEARANCE)

Fairfax Ladder Truck
Custom

Fairfax Ladder Truck
Custom

COLUMNS
BELOW

BUILDING
OVERHANG

BUILDING
CANOPY

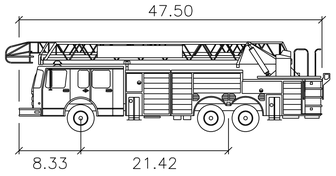
HOSPITAL
ENTRANCE

Fairfax Ladder Truck
Custom

Fairfax Ladder Truck
Custom

HWAY PL.(PRIVATE)

RIVAL COURT
OUND FLOOR)



Fairfax Ladder Truck

	feet
Width	: 8.00
Track	: 8.50
Lock to Lock Time	: 6.0
Steering Angle	: 33.3

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		REVISIONS

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PRELIMINARY SITE PLAN
INOVA HOSPITAL CAMPUS PHASE I

BUILDINGS A, B & C
CITY OF ALEXANDRIA, VIRGINIA

DATE: NOV, 2022

SCALE: 1"= 10'

C.I.= N/A

LEGEND

PROPERTY LINE

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SPECIAL USE PERMIT NO. _____

DEPARTMENT OF PLANNING & ZONING

DIRECTOR _____ DATE _____

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____

DIRECTOR _____ DATE _____

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DATE RECORDED _____

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SHEET
C25.10

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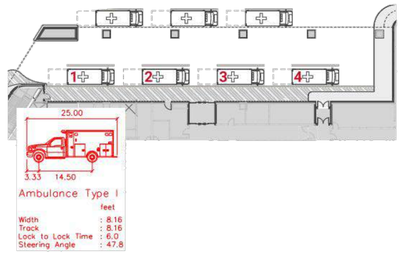
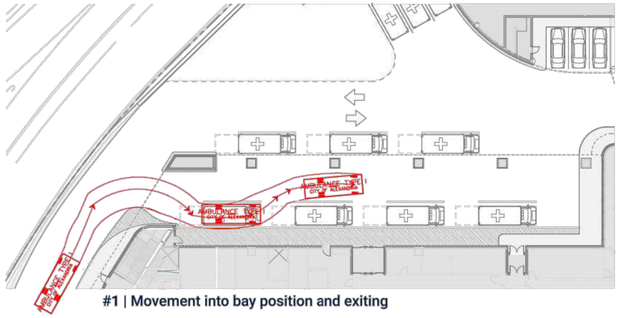
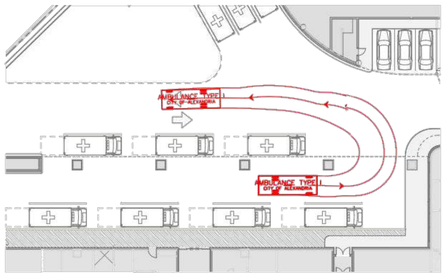
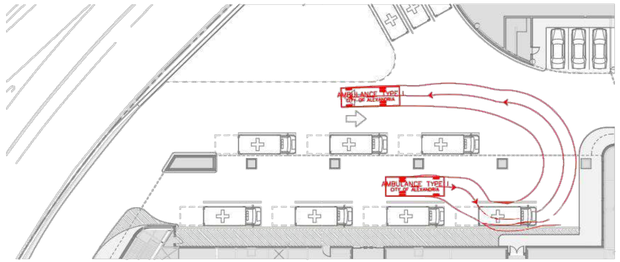




#1 | Movement into bay position and exiting



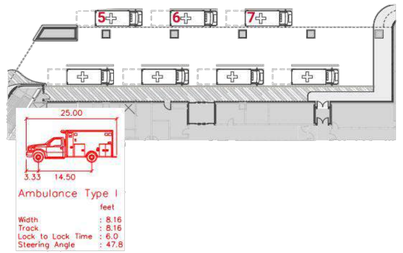
#1, 2, 3 | Movement exiting bay to the west

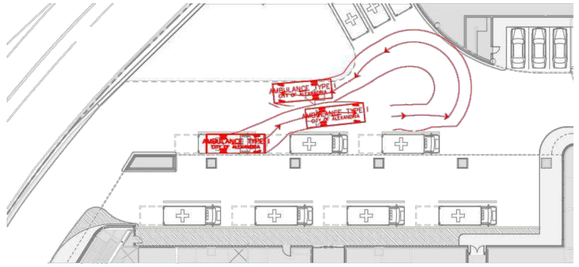


#2, 3, 4 | Movement into bay positions and exiting west

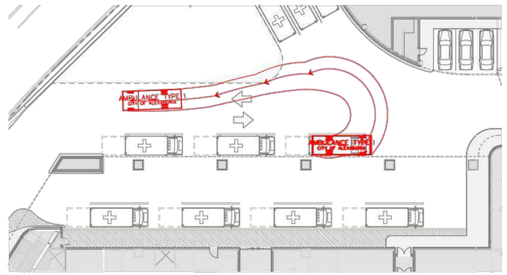
21 **EXHIBIT**
AMBULANCE TYPE I MANEUVERING

KEY

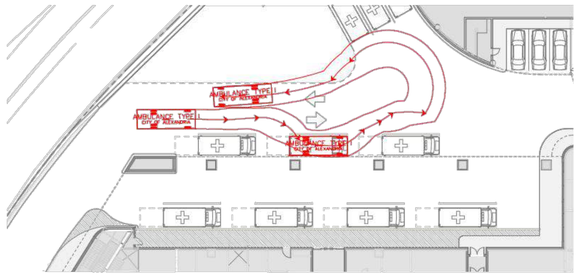




#5 | Movement into position and exiting west

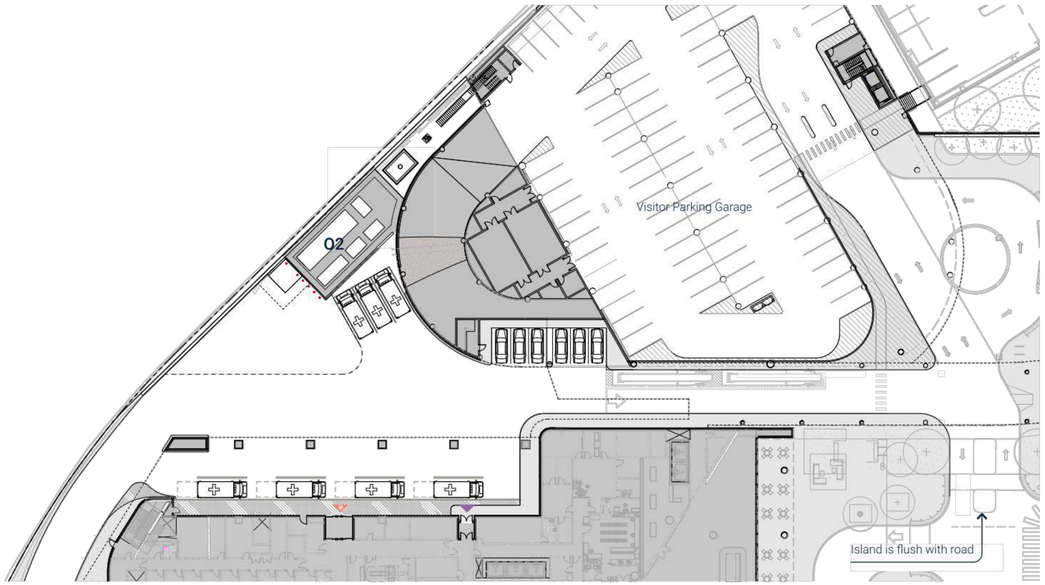


#7 | Movement into position and exiting west

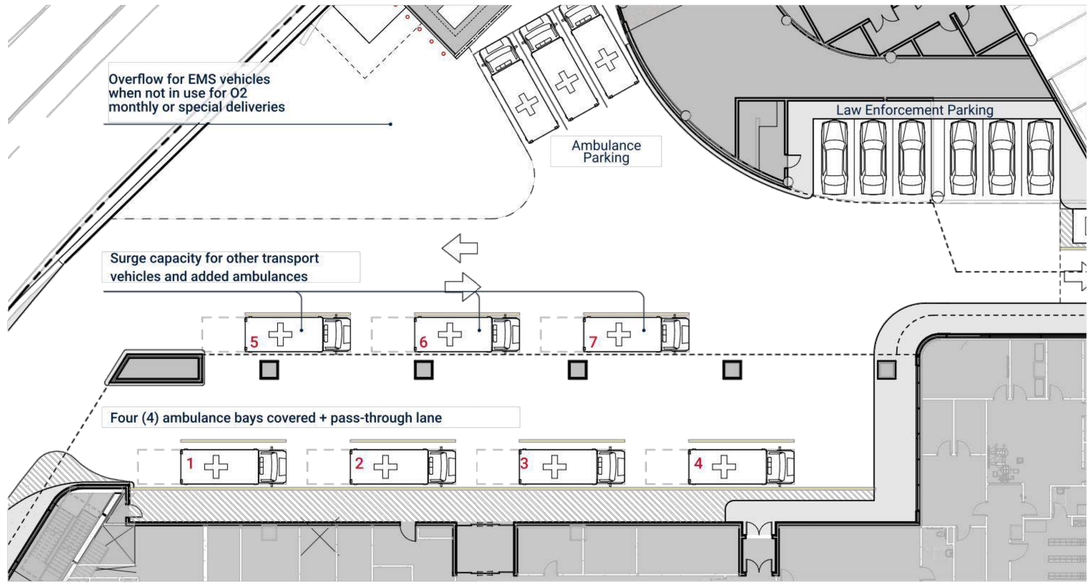


#6 | Movement into position and exiting west

20 **EXHIBIT**
AMBULANCE TYPE I MANEUVERING



11 **EXHIBIT**
SITE ACCESS EMERGENCY DEPARTMENT



10 **EXHIBIT**
AMBULANCE BAYS CONFIGURATION

NOTE: SEE CONCEPT PLAN SHEETS C7-C7.10 FOR STRIPING/MARKINGS FOR AMBULANCE PARKING

APPROVED
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_____ DIRECTOR _____ DATE
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SITE PLAN NO. _____
_____ DIRECTOR _____ DATE
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ENGINEER
PROFESSIONAL
11/04/2022

AUTOTURN EXHIBIT
PRELIMINARY SITE PLAN
INOVA HOSPITAL CAMPUS PHASE I
BUILDINGS A, B & C
CITY OF ALEXANDRIA, VIRGINIA
DATE: NOV. 2022
C.I.= N/A
SCALE: N/A

SHEET
C25.20

FILE No.
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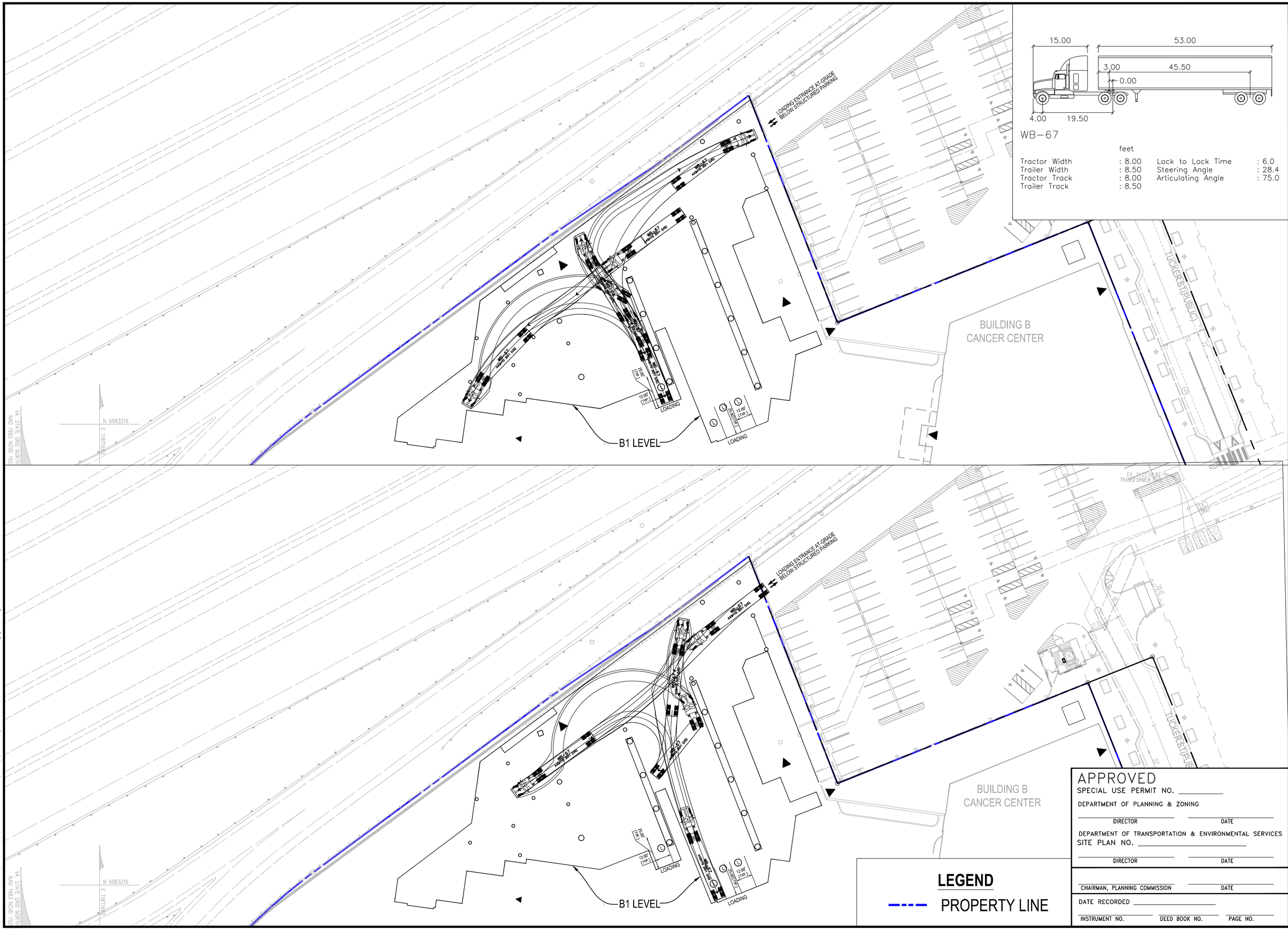

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11/04/2022

AUTOTURN EXHIBIT

PRELIMINARY SITE PLAN
INOVA HOSPITAL CAMPUS PHASE I

BUILDINGS A, B & C
CITY OF ALEXANDRIA, VIRGINIA

DATE: NOV, 2022
SCALE: 1"= 30'
C.I.= N/A

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DEPARTMENT OF PLANNING & ZONING
DIRECTOR _____ DATE _____
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SHEET
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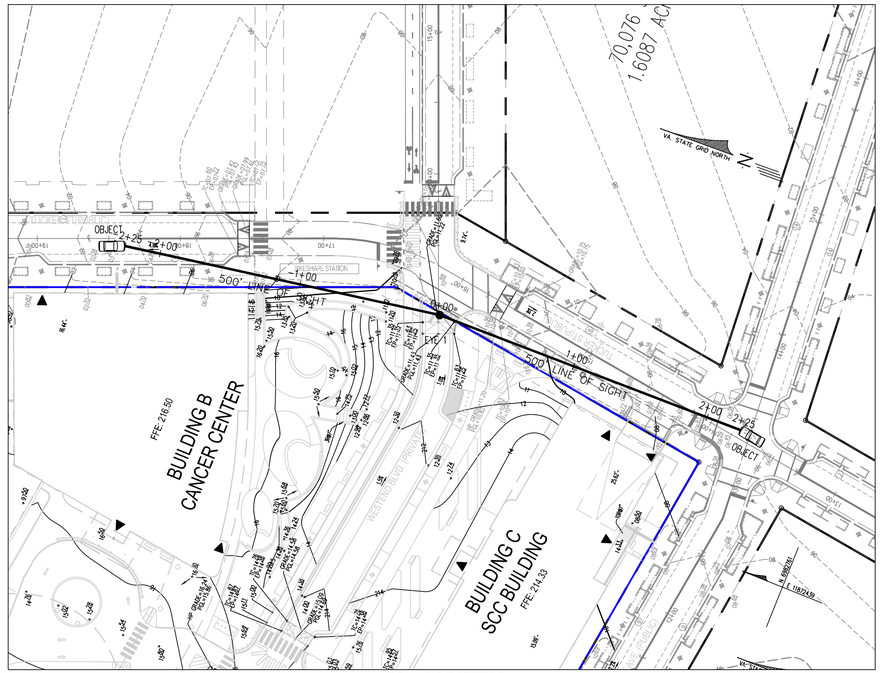
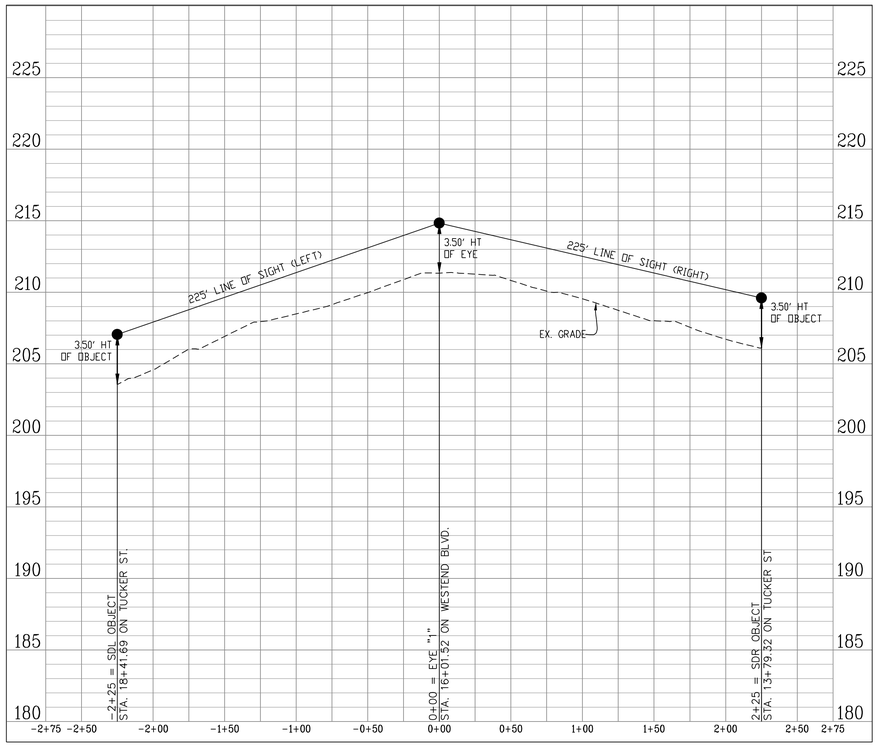
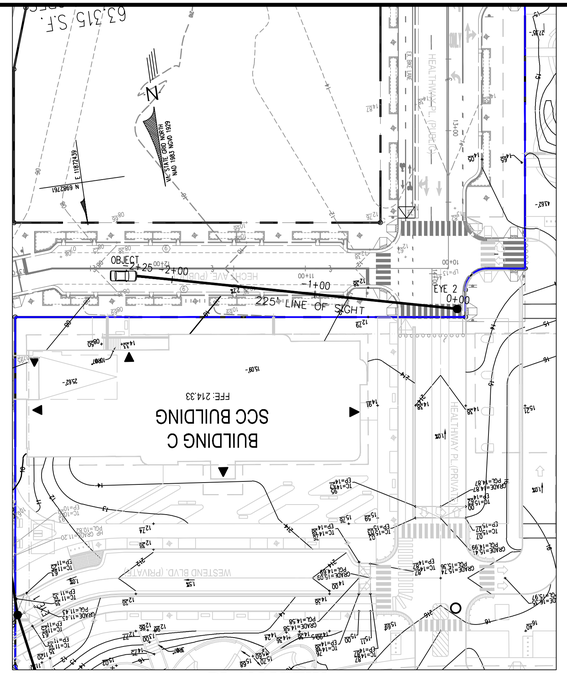


PLAN VIEW
SCALE: 1"=50'

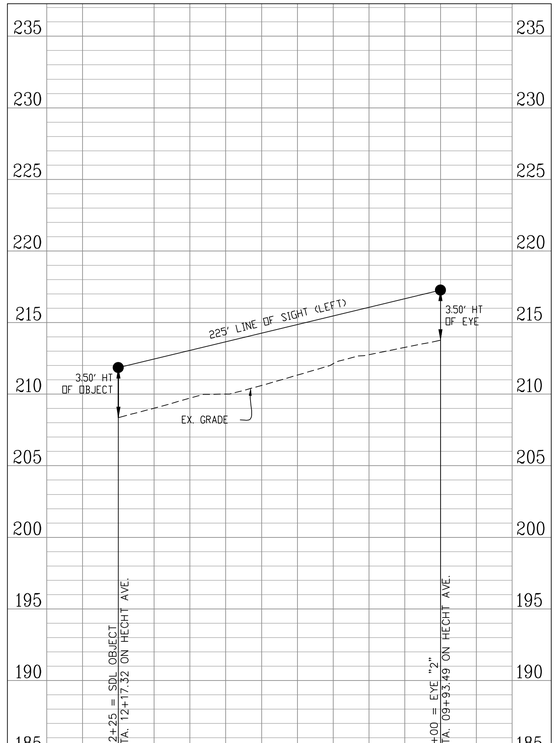
SIGHT DISTANCE PROFILE
INTERSECTION OF WESTEND BLVD AND TUCKER ST.
EYE "1"
POSTED SPEED = -- MPH
DESIGN SPEED = 20 MPH





PLAN VIEW
SCALE: 1"=20'

SIGHT DISTANCE PROFILE
INTERSECTION OF HEALTHWAY PL & HECHT AVE. EYE "2"
POSTED SPEED = -- MPH
DESIGN SPEED = 20 MPH



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DEPARTMENT OF PLANNING & ZONING
DIRECTOR _____ DATE _____
DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____
DIRECTOR _____ DATE _____
CHAIRMAN, PLANNING COMMISSION _____ DATE _____
DATE RECORDED _____
INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO. _____

REVISIONS

No.	DATE	DESCRIPTION

PLAN DATE
11-04-2022

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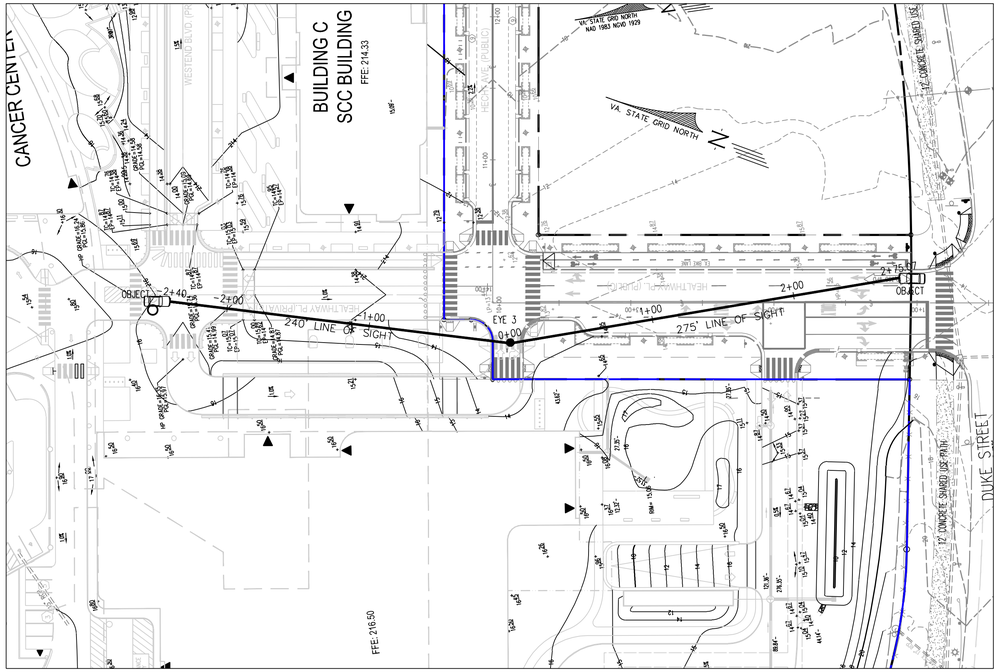
COMMONWEALTH OF VIRGINIA
CLAYTON C. TOCK
Lic. No. 036790
PROFESSIONAL ENGINEER
11/04/2022

SIGHT DISTANCE PROFILES
PRELIMINARY SITE PLAN
INOVA HOSPITAL CAMPUS PHASE I
BUILDINGS A, B & C
CITY OF ALEXANDRIA, VIRGINIA
SCALE: 1"= 30'
C.I.= N/A
DATE: NOV, 2022

SHEET
C26.00

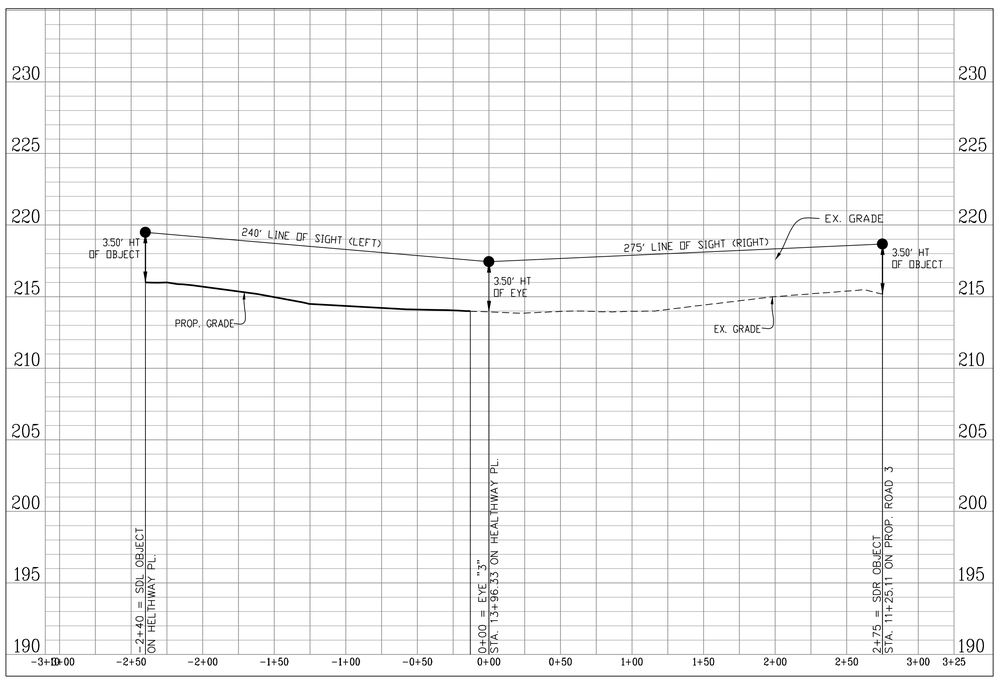
FILE No.
SP-13086

Urban, Ltd. - J:\JOBS\LandmarkMall\DSUP\Block-A&B&C (INOVA)\Preliminary Site Plan\13086-24-SIGHT DISTANCE.dwg [SD1] November 04, 2022 - 2:18pm owolla



PLAN VIEW
SCALE: 1"=50'

SIGHT DISTANCE PROFILE
INTERSECTION OF SITE EXIT AND HEALTHWAY PLACE.
EYE "3"
POSTED SPEED = -- MPH
DESIGN SPEED = 20 MPH



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DIRECTOR DATE
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CLAYTON C. TOCK
Lic. No. 038790
11/04/2022
REGISTERED PROFESSIONAL ENGINEER

SIGHT DISTANCE PROFILES
PRELIMINARY SITE PLAN
INOVA HOSPITAL CAMPUS PHASE I
BUILDINGS A, B & C
CITY OF ALEXANDRIA, VIRGINIA
SCALE: 1"= 30' C.I.= N/A DATE: NOV, 2022

SHEET
C26.10

FILE No.
SP-13086

Urban, Ltd. - J:\JOBS\LandmarkMall\DSUP\Block-A&B&C (INOVA)\Preliminary Site Plan\13086-24-SIGHT DISTANCE.dwg [SD2] November 04, 2022 - 2:19pm owaila

MATCHLINE
SEE SHEET C27.10

BUILDING A
HOSPITAL

BUILDING B
CANCER CENTER

BUILDING C
SCC BUILDING

WESTEND BLVD. (PRIVATE)

HEALTHWAY PL. (PRIVATE)

TUCKER ST(PUBLIC)

HECHT AVE. (PUBLIC)

HEALTHWAY PL. (PUBLIC)

DUKE STREET
ROUTE #236
VARIABLE WIDTH R/W
PUBLIC STREET

12' CONCRETE SHARED USE PATH

EX. STREETLIGHT

EX. STREETLIGHT (TYP.)

I-395 RAMP

10,368 VPD

N 6982761
E 1187439

VA STATE GRID NORTH
NAD 1983 NAD 1929

N

KEY MAP (NOT TO SCALE)

LIGHTING FIXTURE SCHEDULE		
TYPE	MTG.	DESCRIPTION
LL2	REC	SMALL APERTURE RECESSED LED DOWNLIGHT, MOUNTED IN PERGOLA STRUCTURE
LL3	REC	5" APERTURE HIGH OUTPUT RECESSED LED ADJUSTABLE ACCENT
LL4	WALL	WALL SURFACE MOUNTED, FULL CUTOFF LED AREA LIGHT WITH TYPE IV DISTRIBUTION
LM1	GRND	40" TALL, LED ILLUMINATED REINFORCED SECURITY BOLLARD
LM2	GRND	SILICONE ENCASED FLEXIBLE LED TAPE LIGHT
LM3	GRND	GROUND MOUNTED ADJUSTABLE LED TREE ACCENT LIGHT
LM4		NOT USED
LM5	INGRND	IN-GRADE LED UPLIGHT
LM6	GRND	WALL SURFACE MOUNTED GRAZER
LP1	POLE	FULL CUTOFF LED AREA LIGHT WITH TYPE IV DISTRIBUTION, MOUNTED ON 20' TALL POLE
LP1A		NOT USED
LP1B	POLE	DUAL HEADED FULL CUTOFF LED AREA LIGHT WITH TYPE IV DISTRIBUTION, MOUNTED ON 20' TALL POLE
LP3	POLE	14' TALL POLE WITH TWO ADJUSTABLE ACCENT HEADS AT 120° ANGLE
LP3A	POLE	14' TALL POLE WITH THREE ADJUSTABLE ACCENT HEADS AT 120° ANGLE
LP3B	POLE	14' TALL POLE WITH TWO ADJUSTABLE ACCENT HEADS AT 180° ANGLE
LP4	POLE	CARLYLE ACORN POST TOP HEAD ON 14' POLE WITH FLUTED BASE (DOMINION ENERGY STANDARD)

LEGEND

PROPERTY LINE

LIMITS OF DISTURBANCE

APPROVED
SPECIAL USE PERMIT NO. _____

DEPARTMENT OF PLANNING & ZONING

DIRECTOR DATE

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____

DIRECTOR DATE

CHAIRMAN, PLANNING COMMISSION DATE

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CLAYTON C. TOCK
Lic. No. 038790
PROFESSIONAL ENGINEER
11/04/2022

LIGHTING PLAN

PRELIMINARY SITE PLAN
INOVA HOSPITAL CAMPUS PHASE I

BUILDINGS A, B & C
CITY OF ALEXANDRIA, VIRGINIA

DATE: NOV, 2022
C.I.= N/A
SCALE: 1"= 30'

SHEET
C27.00

FILE No.
SP-13086

Urban, Ltd. - J:\JOBS\LandmarkMall\DSUP\Block-A&B&C (INOVA)\Preliminary Site Plan\13086-25-LIGHTING PLAN.dwg [LIGHT1] November 04, 2022 - 2:19pm awolla

LIGHTING FIXTURE SCHEDULE		
TYPE	**MTG.**	**DESCRIPTION**
LL2	REC	SMALL APERTURE RECESSED LED DOWNLIGHT, MOUNTED IN PERGOLA STRUCTURE
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N 6983765
E 1187892

VA. STATE GRID NORTH
NAD 1983 NGVD 1929

N

HENRY G. SHIRLEY MEMORIAL HIGHWAY
INTERSTATE #395
VARIABLE WIDTH R/W
PUBLIC STREET

EX. STREETLIGHT

TUCKER ST (PUBLIC)

EX. STREETLIGHT (TYP.)

N 6983216
E 1187893

MATCHLINE
SEE SHEET C27.00

LEGEND

PROPERTY LINE

LIMITS OF DISTURBANCE

APPROVED
SPECIAL USE PERMIT NO. _____

DEPARTMENT OF PLANNING & ZONING

DIRECTOR _____ DATE _____

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____

DIRECTOR _____ DATE _____

CHAIRMAN, PLANNING COMMISSION _____ DATE _____

DATE RECORDED _____

INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO. _____

KEY MAP (NOT TO SCALE)

No.	DATE	DESCRIPTION
		REVISIONS

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11-04-2022

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CLAYTON C. TOCK
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PROFESSIONAL ENGINEER
11/04/2022

LIGHTING PLAN
PRELIMINARY SITE PLAN
INOVA HOSPITAL CAMPUS PHASE I
BUILDINGS A, B & C
CITY OF ALEXANDRIA, VIRGINIA

SCALE: 1"= 30' C.I.= N/A DATE: NOV, 2022

SHEET
C27.10

FILE No.
SP-13086

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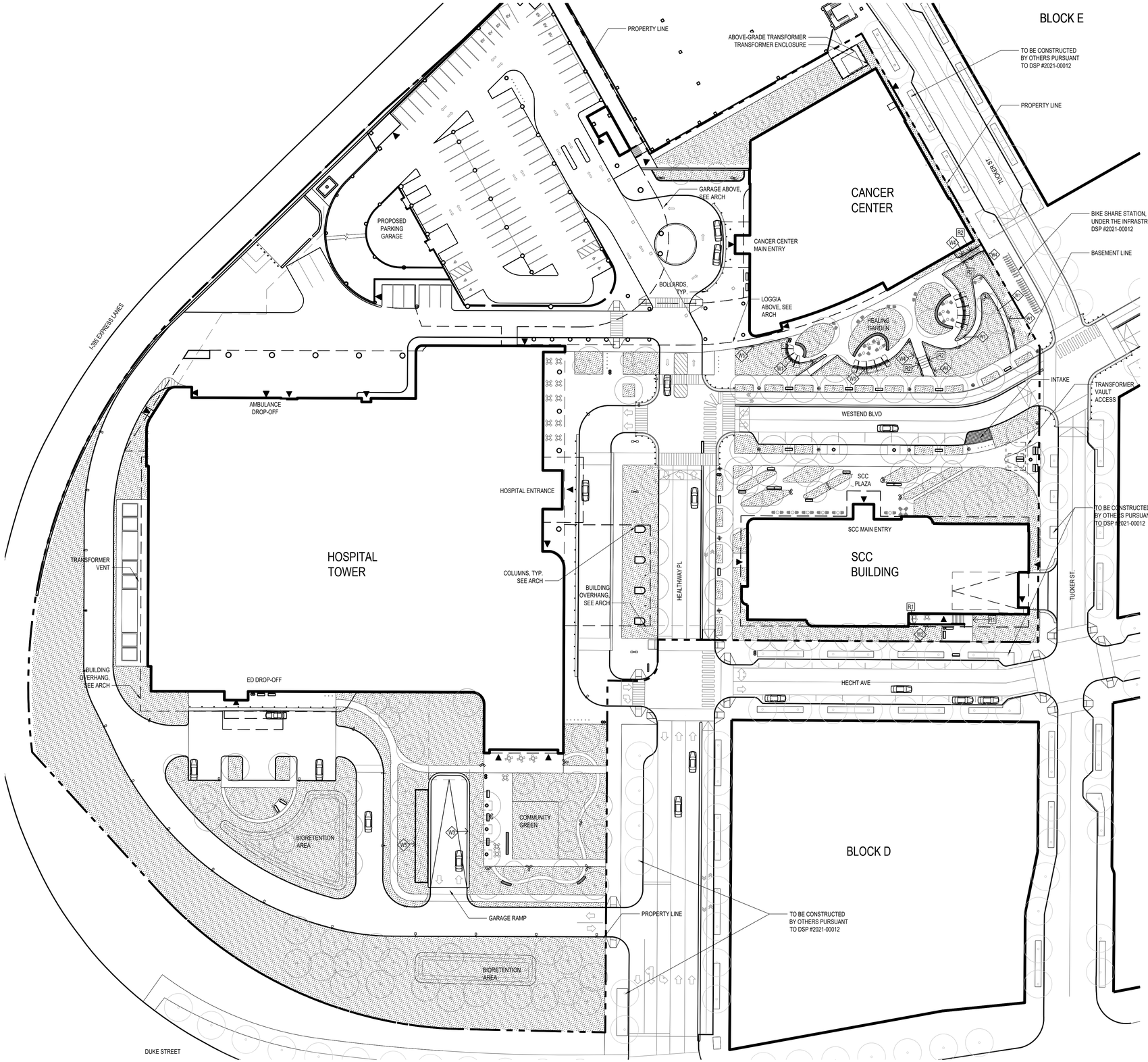

1 LANDSCAPE SITE PLAN - GRAPHIC
Scale: 1" = 40'-0"

0 20' 40' 80' 120'

NORTH

NOTES:
INFRASTRUCTURE AND LANDSCAPING BEYOND PROPERTY LINE TO BE PROVIDED BY OTHERS PURSUANT TO DSP #2021-00012

FURNITURE SCHEDULE

FURNITURE TYPE	SYMBOL
MOVABLE SEATING	
FIXED SEATING	
TREE GRATE	
WASTE RECEPTACLES	
BIKE RACKS	
BOLLARDS	
SHADE STRUCTURE	

KEY

	TREES ADJACENT TO PROPERTY LINE
	TREES WITHIN PROPERTY LINE
	PLANTED AREA
	STREET LIGHT
	POLE LIGHT

WALL TYPE	SYMBOL
TYPE 1 STONE CURB	W1
TYPE 2 ENTRANCE WALL	W2
TYPE 3 GARAGE WALL	W3
TYPE 4 CHEEK WALL	W4
TYPE 5 CONCRETE WALL	W5

MATERIAL SCHEDULE

RAIL TYPE	SYMBOL
TYPE 1 GUARDRAIL	R1
TYPE 2 HANDRAIL	R2

APPROVED
DEVELOPMENT SITE PLAN NO. _____
DEPARTMENT OF PLANNING & ZONING
_____ DIRECTOR _____ DATE
DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____
_____ DIRECTOR _____ DATE
_____ CHAIRMAN, PLANNING COMMISSION _____ DATE
DATE RECORDED _____
INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO. _____

INOVA
EASTERN REGION
ALEXANDRIA AT LANDMARK
3801 DUKE ST. ALEXANDRIA, VA 22304

BALLINGER
ennead
GGN
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WASHINGTON, DC 20007
202.338.0014

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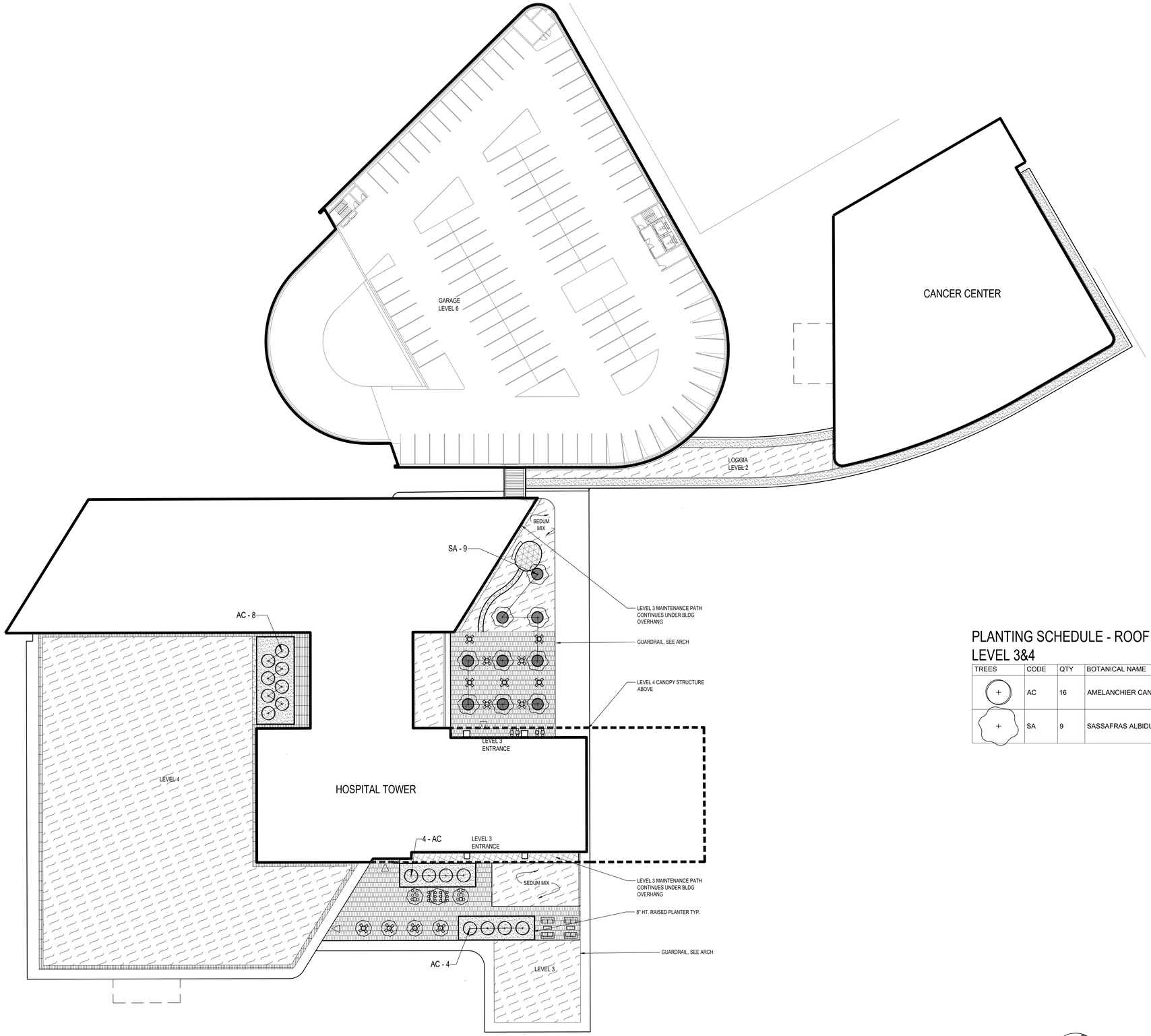
PHILADELPHIA, PA 19106
215.238.1644
BACK OF HOUSE
BOH LOGISTICS
17729 CLIFFBOURNE LANE
DERWOOD, MD 20855
240.400.0925

KEYPLAN:

SEAL:
COMMONWEALTH OF VIRGINIA
RODRIGO ABELA
Lic. 0406001401
LANDSCAPE ARCHITECT

DRAWING ISSUE

PROJECT:
SCALE: 1"=40'-0"
TITLE:
LANDSCAPE PLAN
NUMBER:
L1.00



1 LANDSCAPE PLAN - ROOF
Scale: 1" = 30'-0"

MATERIAL SCHEDULE - ROOF LEVEL 3&4

PAVING TYPE	SYMBOL
MAINTENANCE PATH PAVING	
PRECAST PAVERS 1	
PRECAST PAVERS 2	

FURNITURE SCHEDULE - ROOF LEVEL 3&4

FURNITURE TYPE	SYMBOL
PLANTER	
RAISED PLANTER	SEE PLAN
FIXED FURNITURE	
MOVABLE FURNITURE	

PLANTING SCHEDULE - ROOF LEVEL 3&4

PLANTING TYPE	SYMBOL
TYPE 1 SEDUM MIX	
TYPE 2 MIXED TREES / SHRUBS	

PLANTING SCHEDULE - ROOF LEVEL 3&4

TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
+	AC	16	AMELANCHIER CANADENSIS	CANADIAN SERVICEBERRY	1.75" CAL.	B&B
+	SA	9	SASSAFRAS ALBIDUM	SASSAFRAS - MULTISTEM	3" CAL.	B&B

0 15' 30' 60' 90'

NORTH

APPROVED
DEVELOPMENT SITE PLAN NO. _____
DEPARTMENT OF PLANNING & ZONING
DIRECTOR _____ DATE _____
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240.400.0925

KEYPLAN:

SEAL:

COMMONWEALTH OF VIRGINIA
ROBERTO ABELA
LIC. NO. 0406001401
LANDSCAPE ARCHITECT

DRAWING ISSUE

PROJECT:

SCALE: 1"=30'-0"

TITLE:

LANDSCAPE PLAN -ROOF

NUMBER:

L2.00

TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	REMARKS
+	AR	3	ACER RUBRUM	RED MAPLE	3" CAL.	B&B	CATEGORY IV
+	AS	9	ACER SACCHARUM	SUGAR MAPLE	3" CAL.	B&B	CATEGORY IV
+	AC	11	AMELANCHIER CANADENSIS	CANADIAN SERVICEBERRY	1.75" CAL.	B&B	CATEGORY II
+	BS	6	BETULA PAPYRIFERA 'RENAISSANCE'	RENAISSANCE PAPER BIRCH - MULTISTEM	10' HT.	B&B	CATEGORY III
+	CA	7	CARPINUS CAROLINIANA	AMERICAN HORNBEAM	1.75" CAL.	B&B	CATEGORY II
+	CE	11	CERCIS CANADENSIS	EASTERN REDBUD - MULTISTEM	10' HT.	B&B	CATEGORY II
+	CV	4	CHIONANTHUS VIRGINICUS	WHITE FRINGETREE	1.75" CAL.	B&B	CATEGORY II
+	CK	5	CLADRASTIS KENTUKEA	AMERICAN YELLOWWOOD	3" CAL.	B&B	CATEGORY IV
+	CF	13	CORNUS KOUSA	KOREAN DOGWOOD - MULTISTEM	10' HT.	B&B	CATEGORY I
+	FG	9	FAGUS GRANDIFOLIA	AMERICAN BEECH	3" CAL.	B&B	CATEGORY IV
+	GT	6	GLEDITSIA TRIACANTHOS	HONEY LOCUST	3" CAL.	B&B	CATEGORY III
+	HC	2	HALESIA CAROLINA	SILVERBELL	3" CAL.	B&B	CATEGORY I
+	IO	5	ILEX OPACA	AMERICAN HOLLY	10' HT.	B&B	CATEGORY I
+	NS	10	NYSSA SYLVATICA	BLACK GUM	3" CAL.	B&B	CATEGORY III
+	PV	5	PINUS VIRGINIANA	VIRGINIA PINE	8' HT.	B&B	CATEGORY II
+	PO	10	PLATANUS OCCIDENTALIS	SYCAMORE	3" CAL.	B&B	CATEGORY IV
+	PB3	2	PLATANUS X ACERIFOLIA 'BLOODGOOD'	BLOODGOOD LONDON PLANE TREE	3" CAL.	B&B	CATEGORY IV
+	QA	6	QUERCUS ALBA	WHITE OAK	3" CAL.	B&B	CATEGORY IV
+	QC	6	QUERCUS COCCINEA	SCARLET OAK	3" CAL.	B&B	CATEGORY IV
+	QP	8	QUERCUS PHELLOS	WILLOW OAK	3" CAL.	B&B	CATEGORY IV
+	SA	7	SASSAFRAS ALBIDUM	SASSAFRAS - MULTISTEM	3" CAL.	B&B	CATEGORY IV

NOTES:
INFRASTRUCTURE AND LANDSCAPING BEYOND PROPERTY LINE TO BE PROVIDED BY OTHERS PURSUANT TO DSP #2021-00014

CROWN COVER TABULATIONS	
TOTAL SITE AREA (SF)	416,676
25% CROWN COVER REQUIRED (SF)	104,169
EXISTING CROWN COVER (SF)	0
REMOVED CROWN COVER (SF)	0
PRESERVED CROWN COVER (SF)	
Crown Cover from Preserved Trees	0
Crown Cover from Preserved Shrubs	0
PROPOSED CROWN COVER (SF)	
Crown Cover from Proposed Trees	114,500
Crown Cover from Proposed Shrubs	
TOTAL CROWN COVER PROVIDED (%)	27.5%
TOTAL CROWN COVER PROVIDED (SF)	114,500

NOTES:
1. ALL TREES OVER STRUCTURE WILL MEET MINIMUM SOIL VOLUME REQUIREMENTS

PLANT SUBSTITUTIONS

a. If building management or the property owner would like to make substitutions to the approved plant material, they may do so through the following procedure:

i. A letter from the project Landscape Architect shall be submitted to the Department of Planning and Zoning (P&Z) project manager requesting any changes to the approved plantings on the plan. The letter shall include a list of the quantities, types and sizes of the original plant material and the proposed substitution, with the location shown on the plan.

ii. The substitution shall not reduce the number of plants approved on the plan, nor shall it reduce the crown coverage for the site.

iii. There shall be no significant change in the size, characteristics, percentage of native species, biodiversity standards, or location of the plant materials.

iv. The P&Z project manager shall provide written confirmation of the plant substitution(s). No substitution(s) may occur without written acceptance of the plant substitution(s) by the City.

PLANT SCHEDULE — November 3, 2022

PLANT TYPE	PLAN INFORMATION		BOTANIC/COMMON NAME				SIZE	REMARKS	CROWN COVER ALLOWANCE (CCA)		NATIVE PLANTS PROVIDED		
	PLAN KEY	QUANTITY	GENUS	SPECIES	VAR./CULTIVAR/ HYBRID	CATEGORY	CALIPER/HEIGHT AT INSTALL	NOTES	CCA PER TREE (SF)	TOTAL CROWN COVER (SF)	LOCAL/ REGIONAL (#)	EASTERN U.S. (#)	TOTAL
TREES	AR	3	Acer	rubrum		Category IV	3" cal./12-14 ft. ht.	B&B; symmetrical, single leader	1,250	3,750	3	3	3
	AS	9	Acer	saccharum		Category IV	3" cal./12-14 ft. ht.	B&B; symmetrical, single leader	1,250	11,250	9	9	9
	AC	11	Amelanchier	candanesis		Category II	1.75" cal. / 10 ft ht.	B&B; multistem, full branching	500	5,500	11	11	11
	BS	6	Betula	papyrifera	Renaissance'	Category III	3" cal./12-14 ft. ht.	B&B; multistem, full branching	750	0	0	6	6
	CA	7	Carpinus	carolinlana		Category IV	12-14 ft. Ht	B&B; symmetrical, single leader	1,250	8,750	7	7	7
	CE	11	Cercis	canadensis		Category III	3" cal./12-14 ft. ht.	B&B; multistem, full branching	750	8,250	11	11	11
	CV	4	Chionanthus	virginicus		Category II	1.75" cal. / 10 ft ht.	B&B; symmetrical, single leader	500	2,000	4	4	4
	CF	5	Cladrastis	kentukea		Category IV	5" cal.	B&B; symmetrical, single leader (does not count towards overall crown coverage)		0	0	0	0
	CF	3	Cornus	kousa		Category II	5" cal.	B&B; mutlistem, full branching (does not count towards overall crown coverage)		0	0	0	0
	CF	10	Cornus	kousa		Category II	10 ft. ht	B&B; mutlistem, full branching	500	5,000	0	0	0
	FG	9	Fagus	grandiflora		Category IV	3" cal./ 12-14 ft. ht.	B&B; symmetrical, single leader	1,250	11,250	9	9	9
	GT	6	Gleditsia	triacanthos		Category III	3" cal./ 12-14 ft. ht.	B&B; symmetrical, single leader	750	4,500	6	6	6
	HC	2	Halesia	carolina		Category I	3" cal./ 12-14 ft. ht.	B&B; symmetrical, single leader	250	500	0	0	0
	IO	5	Ilex	opaca		Category I	1.75" cal.	B&B; symmetrical, single leader	250	1,250	5	5	5
	NS	10	Nyssa	sylvatica		Category III	3" cal./ 12-14 ft. ht.	B&B; symmetrical, single leader	750	7,500	10	10	10
	PV	5	Pinus	virginiana		Category II	3" cal./12-14 ft. ht.	B&B; symmetrical, single leader	500	2,500	5	5	5
	PO	10	Platanus	occidentalis		Category IV	3" cal./12-14 ft. ht.	B&B; symmetrical, single leader	1,250	12,500	10	10	10
	PO	2	Platanus	x acerifolia	Bloodgood'	Category IV	3" cal./12-14 ft. ht.	B&B; symmetrical, single leader	1,250	0	0	0	0
	QA	6	Quercus	alba		Category IV	3" cal./12-14 ft. ht.	B&B; symmetrical, single leader	1,250	7,500	6	6	6
	QC	3	Quercus	coccinea		Category IV	5" cal.	B&B; symmetrical, single leader (does not count towards overall crown coverage)		0	3	3	3
	QC	3	Quercus	coccinea		Category IV	3" cal./12-14 ft. ht.	B&B; symmetrical, single leader	1,250	3,750	3	3	3
	QP	8	Quercus	phellos		Category IV	3" cal./ 12-14 ft. ht.	B&B; symmetrical, single leader	1,250	10,000	8	8	8
	SA	7	Sassafras	albidum		Category IV	3" cal./ 12-14 ft. ht.	B&B; multistem, full branching	1,250	8,750	7	7	7
	TOTALS	145							STANDARD TREE CCA:	114,500	117	123	123
											80.7%	84.8%	84.8%

	PLAN KEY	QUANTITY	GENUS	SPECIES	VAR./CULTIVAR/HYBRID	COMMON NAME	HEIGHT	NOTES	CCA PER SHRUB (SF)	TOTAL CROWN COVER (SF)	LOCAL/ REGIONAL (#)	EASTERN U.S. (#)	TOTAL
EVERGREEN SHRUBS	LP	1	Lonicera	pileata		Privet Honeysuckle	2' HT.	Cont.,72" o.c.					
	RO		Rosmarinus	officinalis		Rosemary	4' HT.	Cont.,48" o.c.					
	SH2		Sarcococca	hookeriana	Humilis'	Trailing Sweetbox	3' HT.	Cont.,48" o.c.					
	VC		Viburnum	x burkwoodii	'Conoy'	Conoy Viburnum	5' HT.	Cont.,84" o.c.					
	TOTALS	1							EVERGREEN SHRUB CCA:		#	#	
											%	%	

	PLAN KEY	QUANTITY	GENUS	SPECIES	VAR./CULTIVAR/HYBRID	COMMON NAME	HEIGHT	NOTES	CCA PER SHRUB (SF)	TOTAL CROWN COVER (SF)	LOCAL/ REGIONAL (#)	EASTERN U.S. (#)	TOTAL
DECIDUOUS SHRUBS	CA4	1	Callicarpa	americana		American Beautyberry	2' HT.	Cont., 60" o.c.					
	CA2		Ceanothus	americanus		New Jersey Tea	2' HT.	Cont., 36" o.c.					
	CS		Cephalanthus	occidentalis	'Sugar Shack'	Sugar Shack Buttonbush	2' HT.	Cont., 48" o.c.					
	CH2		Clethra	alnifolia	Hummingbird'	Hummingbird Summersweet	2' HT.	Cont., 48" o.c.					
	CS2		Cornus	alba	'Sibirica'	Redbark Dogwood	3' HT.	Cont., 48" o.c.					
	FX		Fothergilla	x intermedia	'Mount Airy'	Mount Airy Fothergilla	3' HT.	Cont., 60" o.c.					
	HV		Hamamelis	vernalis		Ozark Witch Hazel	6-7' HGT.	B&B					
	HW2		Hydrangea	quercifolia	Pee Wee'	Pee Wee Oakleaf Hydrangea	4' HT.	Cont., 36" o.c.					
	HO		Hydrangea	quercifolia	'Snow Queen'	Snow Wueen Oakleaf Hydrange	5' HT.	Cont., 72" o.c.					
	IC2		Ilex	crenata	'Compacta'	Dwarf Japanese Holly	3' HT.	Cont., 72" o.c.					
	IS		Ilex	glabra	'Shamrock'	Shamrock Inkberry Holly	3' HT.	Cont., 48" o.c.					
	IB		Ilex	verticillata	'Berry Heavy'	Berry Heavy Winterberry	6-7' HGT.	Cont., 84" o.c.					
	IV		Ilex	verticillata	'Jim Dandy'	jJim Dandy Winterberry	6-7' HGT.	Cont., 72" o.c.					
	IR		Ilex	verticillata	'Red Sprite'	Red Sprite Winterberry	6-7' HGT.	Cont., 36" o.c.					
	IV2		Itea	virginica	'Henry's Garnet'	Henry's Garnet Sweetspire	3' HT.	Cont., 60" o.c.					
	RG		Rhus	aromatica	Gro-Low'	gro-low fragrant sumac	1.5' HT.	Cont., 60" o.c.					
	SC		Stephanandra	incisa	Crispa'	Cutleaf Stephanandra	1.5' HT.	Cont., 36" o.c.					
	VA2		Vaccinium	angustifolium		Lowbush Blueberry	3' HT.	Cont., 24" o.c.					
	VC		Viburnum	x burkwoodii	'Conoy'	Conoy Viburnum	5' HT.	Cont., 84" o.c.					
	TOTALS	1							DECIDUOUS SHRUB CCA:		#	#	
											%	%	
									TOTAL PROPOSED CCA (SF):	#REF!			

	PLAN KEY	QUANTITY	GENUS	SPECIES	VAR./CULTIVAR/HYBRID	COMMON NAME	SIZE/CONT.	NOTES		LOCAL/ REGIONAL (#)	EASTERN U.S. (#)	TOTAL
GROUNDCOVERS	CA3	1	Carex	appalachica		Appalachian Sedge	1 gal.	Cont., 24" o.c	N/A			
	CP2		Carex	pensylvanica		Pennsylvania Sedge	1 gal.	Cont., 12" o.c				
	TOTALS	1								#	#	
										%	%	

	PLAN KEY	QUANTITY	GENUS	SPECIES	VAR./CULTIVAR/HYBRID	COMMON NAME	SIZE/CONT.	NOTES		LOCAL/ REGIONAL (#)	EASTERN U.S. (#)	TOTAL
PERENNIALS, FERNS, ORNAMENTAL GRASSES	AT	1	Achillea	millefolium	'Terra Cotta'	Terra Cotta Common Yarrow	1 gal.	Cont., 30" o.c.				
	AP		Agastache		Purple Haze'	Purple Haze Anise Hyssop	1 gal.	Cont., 30" o.c.				
	AH		Amsonia	hubrichtii		Arkansas Bluestar	1 gal.	Cont., 36" o.c.				
	AI		Asclepias	incarnata		Swamp Milkweed	1 gal.	Cont., 30" o.c.				
	AT2		Asclepias	tuberosa		Butterfly Milkweed	1 gal.	Cont., 18" o.c.				
	AR2		Aster	oblongifolius	Raydon's Favorite'	Raydon's Favorite Fall Aster	1 gal.	Cont., 36" o.c.				
	AV		Astilbe	chinensis	Visions in White'	Visions in White Chinese Astilb	1 gal.	Cont., 24" o.c.				
	BG		Bouteloua	gracilis		Blue Grama Grass	1 gal.	Cont., 24" o.c.				
	CL		Chasmanthium	latifolium		Northern Sea Oats	1 gal.	Cont., 30" o.c.				
	CB		Cimicifuga	racemosa		Black Cohosh	1 gal.	Cont., 36" o.c.				
	CM2		Coreopsis	x	'Moonbeam'	Moonbeam Tickseed	1 gal.	Cont., 14" o.c.				
	DP		Dennstaedtia	punctilobula		Hay-Scented fFern	1 gal.	Cont., 30" o.c.				
	DT		Deschampsia	cespitosa		Tufted Hair Grass	1 gal.	Cont., 24" o.c.				
	ER		Echinacea	x	palliida	Pale Purple Coneflower	1 gal.	Cont., 24" o.c.				
	ES		Eragrostis	spectabilis		Purple Lovegrass	1 gal.	Cont., 24" o.c.				
	ED		Eurybia	divaricata		White Wood Aster	1 gal.	Cont., 30" o.c.				
	EM		Eurybia	macrophylla		Bigleaf Aster	1 gal.	Cont., 36" o.c.				
	GM		Geranium	maculatum		Spotted Geranium	1 gal.	Cont., 18" o.c.				
	GT2		Gillenia	trifoliata		Bowman's Root	1 gal.	Cont., 30" o.c.				
	HW		Helleborus	orientalis	White Lady'	White Lady Lenten Rose	1 gal.	Cont., 18" o.c.				
	HA		Heuchera	villosa	'Autumn Bride'	Autumn Bride Hairy laumroot	1 gal.	Cont., 24" o.c.				
	HS		Hosta	sieboldiana	'Elegans'	Elegans Hosta	1 gal.	Cont., 42" o.c.				
	IB2		Iris	sibirica	'Blue King'	Blue King Siberian Iris	1 gal.	Cont., 24" o.c.				
	JE		Juncus	effusus		Common Rush	1 gal.	Cont., 36" o.c.	N/A			
	LH		Lavandula	angustifolia	Hidcote'	Hidcote English Lavender	1 gal.	Cont., 18" o.c.				
	VA3		Veronicastrum	virginicum	'Album'	White culver's root	1 gal.	Cont., 36" o.c.				
	TOTALS	1								#	#	
										%	%	

	PLAN KEY	QUANTITY	GENUS	SPECIES	VAR./CULTIVAR/HYBRID	COMMON NAME	SIZE/CONT.	NOTES		LOCAL/ REGIONAL (#)	EASTERN U.S. (#)	TOTAL
VINES	PQ	1	Parthenocissus	quinquefolia		Virgina Creeper	3 gal.	Cont., 48" o.c.	N/A			
	TOTALS	1								#	#	
										%	%	

ADDITIONAL INFORMATION WILL BE PROVIDED AT FINAL SITE PLAN

APPROVED
DEVELOPMENT SITE PLAN NO. _____
DEPARTMENT OF PLANNING & ZONING
DIRECTOR — DATE
DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____
DIRECTOR — DATE
CHAIRMAN, PLANNING COMMISSION — DATE
DATE RECORDED _____
INSTRUMENT NO. — DEED BOOK NO. — PAGE NO.

1 PLANT SCHEDULE & CROWN COVER TABULATIONS
Scale: 1" = 40'-0"

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EASTERN REGION
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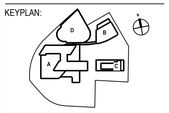
KEYPLAN:



SEAL:



DRAWING ISSUE

PROJECT:
SCALE:
TITLE:

LANDSCAPE PLAN -PLANTING SCHEDULE

NUMBER:

L3.00

BIODIVERSITY TABULATIONS

TREES (URBAN AND STANDARD)

TOTAL NUMBER OF TREES PROPOSED 145

GENUS	QTY.	PERCENT OF TOTAL PROPOSED	MAXIMUM PERCENT ALLOWED	SPECIES	QTY.	PERCENT OF TOTAL PROPOSED	MAXIMUM PERCENT ALLOWED
Acer	10	6.9%	33%	rubrum	10	6.9%	10%
Amelanchier	13	9.0%	33%	canadensis	13	9.0%	10%
Carpinus	7	4.9%	33%	caroliniana	7	4.9%	10%
Cercis	13	9.0%	33%	canadensis	13	9.0%	10%
Chionanthus	4	2.8%	33%	virginicus	4	2.8%	10%
Cladrastis	5	3.5%	33%	kentukea	5	3.5%	10%
Cornus	13	9.0%	33%	kousa	13	9.0%	10%
Fagus	9	6.3%	33%	grandiflora	9	6.3%	10%
Gleditsia	6	4.2%	33%	triacanthos	6	4.2%	10%
Halesia	2	1.4%	33%	carolina	2	1.4%	10%
Ilex	8	5.6%	33%	opaca	8	5.6%	10%
Nyssa	10	6.9%	33%	sylvatica	10	6.9%	10%
Pinus	5	3.5%	33%	virginana	5	3.5%	10%
Platanus	10	6.9%	33%	occidentalis	10	6.9%	10%
Quercus	22	15.3%	33%	alba	6	4.2%	10%
				coccinea	6	4.2%	10%
				phellos	10	6.9%	10%
Sassafras	7	4.9%	33%	albidum	7	4.9%	10%

SHRUBS

TOTAL NUMBER OF SHRUBS PROPOSED:

GENUS	QTY.	PERCENT OF TOTAL PROPOSED	MAXIMUM PERCENT ALLOWED	SPECIES	QTY.	PERCENT OF TOTAL PROPOSED	MAXIMUM PERCENT ALLOWED
Callicarpa	0	#DIV/01	33%	americana	0	#DIV/01	10%
Ceanothus	0	#DIV/01	33%	americanus	0	#DIV/01	10%
Cephalanthus	0	#DIV/01	33%	occidentalis	0	#DIV/01	10%
Clethra	0	#DIV/01	33%	alnifolia	0	#DIV/01	10%
Cornus	0	#DIV/01	33%	alba	0	#DIV/01	10%
Fothergilla	0	#DIV/01	33%	x intermedia	0	#DIV/01	10%
Hamamelis	0	#DIV/01	33%	vernalis	0	#DIV/01	10%
Hydrangea	0	#DIV/01	33%	quercifolia	0	#DIV/01	10%
Hydrangea	0	#DIV/01	33%	quercifolia	0	#DIV/01	10%
Ilex	0	#DIV/01	33%	crenata	0	#DIV/01	10%
Ilex	0	#DIV/01	33%	glabra	0	#DIV/01	10%
Ilex	0	#DIV/01	33%	verticillata	0	#DIV/01	10%
Ilex	0	#DIV/01	33%	verticillata	0	#DIV/01	10%
Ilex	0	#DIV/01	33%	verticillata	0	#DIV/01	10%
Itea	0	#DIV/01	33%	virginica	0	#DIV/01	10%
Lonicera	0	#DIV/01	33%	pileata	0	#DIV/01	10%
Rhus	0	#DIV/01	33%	aromatica	0	#DIV/01	10%
Rosmarinus	0	#DIV/01	33%	officinalis	0	#DIV/01	10%
Sarcococca	0	#DIV/01	33%	hookeriana	0	#DIV/01	10%
Stephanandra	0	#DIV/01	33%	incisa	0	#DIV/01	10%
Vaccinium	0	#DIV/01	33%	angustifolium	0	#DIV/01	10%
Viburnum	0	#DIV/01	33%	x burkwoodii	0	#DIV/01	10%
Viburnum	0	#DIV/01	33%	x burkwoodii	0	#DIV/01	10%

ADDITIONAL INFORMATION
WILL BE PROVIDED AT FINAL SITE PLAN

1 BIODIVERSITY TABULATIONS
Not to Scale

A) STANDARD LANDSCAPE PLAN NOTES FOR ALL PLANS REQUIRING APPROVAL:

THE FOLLOWING NOTES SHALL BE PROVIDED ON LANDSCAPE PLAN SUBMISSIONS FOR ALL PROJECTS THAT REQUIRE APPROVAL BY THE CITY AS OUTLINED IN CHAPTER 3 OF THE CITY'S 2019 LANDSCAPE GUIDELINES:

1) THE PROPERTY OWNER AND/OR APPLICANT, SPECIFIER, CONTRACTOR AND INSTALLER OF PLANT MATERIAL ARE RESPONSIBLE FOR UNDERSTANDING AND ADHERING TO THE STANDARDS SET FORTH IN THE MOST RECENT VERSION OF THE CITY OF ALEXANDRIA LANDSCAPE GUIDELINES AND APPLICABLE CONDITIONS OF APPROVAL. ALL QUESTIONS REGARDING APPLICATION OF, OR ADHERENCE TO, THE STANDARDS AND/OR CONDITIONS OF APPROVAL SHALL BE DIRECTED TO THE CITY PRIOR TO COMMENCEMENT OF DEMOLITION, CONSTRUCTION, OR ANY LAND DISTURBING ACTIVITY.

2) THE CITY-APPROVED LANDSCAPE PLAN SUBMISSION, INCLUDING PLANT SCHEDULE, NOTES AND DETAILS SHALL BE THE DOCUMENT USED FOR INSTALLATION PURPOSES AND ALL PROCEDURES SET FORTH IN THE LANDSCAPE GUIDELINES MUST BE FOLLOWED.

3) THE CONTRACTOR SHALL NOT INTERFERE WITH ANY TREE PROTECTION MEASURES OR IMPACT ANY EXISTING VEGETATION IDENTIFIED TO BE PRESERVED PER THE APPROVED TREE AND VEGETATION PROTECTION PLAN.

4) ANY CHANGES, ALTERATIONS OR MODIFICATIONS TO THE SITE CONDITIONS THAT AFFECT VEGETATION PROTECTION ZONES WILL REQUIRE AN AMENDMENT TO THE APPROVED TREE AND VEGETATION PROTECTION PLAN AND/OR DETAILS.

5) INSTALLATION OF PLANT MATERIAL MAY ONLY OCCUR DURING THE PLANTING SEASONS IDENTIFIED IN THE LANDSCAPE GUIDELINES.

6) IN LIEU OF MORE STRINGENT SPECIFICATIONS, ALL LANDSCAPE RELATED WORK SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE CURRENT AND MOST UP-TO-DATE EDITION (AT TIME OF CONSTRUCTION) OF LANDSCAPE SPECIFICATION GUIDELINES AS PRODUCED BY THE LANDSCAPE CONTRACTORS ASSOCIATION OF MARYLAND, DISTRICT OF COLUMBIA AND VIRGINIA, GAITHERSBURG, MARYLAND.

7) SUBSTITUTIONS TO THE APPROVED PLANT MATERIAL SHALL NOT OCCUR UNTIL WRITTEN APPROVAL IS PROVIDED BY THE CITY.

8) MAINTENANCE FOR THIS PROJECT SHALL BE PERFORMED BY THE OWNER, APPLICANT, SUCCESSOR(S) AND/OR ASSIGN(S) IN PERPETUITY AND IN COMPLIANCE WITH CITY OF ALEXANDRIA LANDSCAPE GUIDELINES AND AS CONDITIONED BY PROJECT APPROVAL, AS APPLICABLE.

B) STANDARD LANDSCAPE PLAN NOTES FOR DEVELOPMENT SITE PLANS:

IN ADDITION TO THE NOTES PROVIDED ABOVE, THE FOLLOWING NOTES SHALL BE PROVIDED ON LANDSCAPE PLAN SUBMISSIONS FOR ALL DSP/DSUP PROJECTS:

1) THE APPROVED METHOD(S) OF PROTECTION MUST BE IN PLACE FOR ALL VEGETATION TO BE PRESERVED ON-SITE AND ADJACENT TO THE PROJECT SITE PURSUANT TO THE APPROVED TREE AND VEGETATION PROTECTION PLAN AND DETAILS PRIOR TO COMMENCEMENT OF DEMOLITION, CONSTRUCTION, OR ANY LAND DISTURBANCE. THE APPLICANT SHALL NOTIFY THE PLANNING & ZONING (P&Z) PROJECT MANAGER ONCE THE TREE PROTECTION METHODS ARE IN PLACE. NO DEMOLITION, CONSTRUCTION, OR LAND DISTURBANCE MAY OCCUR UNTIL AN INSPECTION IS PERFORMED BY THE CITY AND WRITTEN CONFIRMATION IS PROVIDED BY THE CITY WHICH VERIFIES CORRECT INSTALLATION OF THE TREE PROTECTION MEASURES.

2) THE APPLICANT MUST CONTACT THE P&Z PROJECT MANAGER PRIOR TO COMMENCEMENT OF LANDSCAPE INSTALLATION/PLANTING OPERATION, TO SCHEDULE A PRE-INSTALLATION MEETING. THE MEETING SHOULD BE HELD BETWEEN THE APPLICANT'S GENERAL CONTRACTOR, LANDSCAPE CONTRACTOR, LANDSCAPE ARCHITECT, THE P&Z PROJECT MANAGER AND THE CITY ARBORIST (AS APPLICABLE) TO REVIEW THE SCOPE OF INSTALLATION PROCEDURES AND PROCESSES DURING AND AFTER INSTALLATION.

3) THE FOLLOWING INFORMATION SHALL BE PROVIDED TO THE P&Z PROJECT MANAGER AT LEAST FIVE (5) BUSINESS DAYS PRIOR TO THE LANDSCAPE PRE-INSTALLATION MEETING: 1) A LETTER THAT CERTIFIES THAT THE PROJECT LANDSCAPE ARCHITECT PERFORMED PRE-SELECTION TAGGING FOR ALL TREES PROPOSED WITHIN THE PUBLIC RIGHT OF WAY AND ON PUBLIC LAND PRIOR TO INSTALLATION. THIS LETTER MUST BE SIGNED AND SEALED BY THE PROJECT LANDSCAPE ARCHITECT, AND 2) A COPY OF THE SOIL BULK DENSITY TEST REPORT VERIFYING THAT MAXIMUM COMPRESSION RATES ARE MET.

4) ALL CONSTRUCTION WASTE SHALL BE REMOVED PRIOR TO PLANTING.

5) AS-BUILT DRAWINGS FOR THIS LANDSCAPE AND/OR IRRIGATION/WATER MANAGEMENT SYSTEM WILL BE PROVIDED IN COMPLIANCE WITH CITY OF ALEXANDRIA LANDSCAPE GUIDELINES, THE CITY CODE OF ORDINANCES, AND ALL APPLICABLE PLAN PREPARATION CHECKLISTS. AS-BUILT DRAWINGS SHALL INCLUDE CLEAR IDENTIFICATION OF ALL VARIATION(S) AND CHANGES FROM APPROVED DRAWINGS INCLUDING LOCATION, QUANTITY AND SPECIFICATION OF ALL PROJECT ELEMENTS.

6) AREAS OF BARE SOIL WILL NOT BE ACCEPTED. MULCHED AREAS AND PLANTING AREAS SHALL BE WEED FREE UPON ACCEPTANCE OF THE PROJECT BY THE CITY.

A STANDARD LANDSCAPE PLAN NOTES
NOT TO SCALE

OF UPDATES: 01 LAST UPDATED: 12/02/2019

CITY OF ALEXANDRIA, VIRGINIA
STANDARD LANDSCAPE DETAILS
CITY OF ALEXANDRIA, VIRGINIA

NOTE:
THE INFORMATION SHOWN HEREIN THIS DOCUMENT IS FOR GENERAL GUIDANCE ONLY AND IS NOT INTENTED FOR CONSTRUCTION PURPOSES. ITS USE SHALL NOT RELIEVE THE DESIGN PROFESSIONAL OR CONTRACTOR OF ANY LEGAL RESPONSIBILITY.

Source: CITY OF ALEXANDRIA
Approved by: COA
1 OF 1
STANDARD LANDSCAPE PLAN NOTES
Date drawn: 01/01/19
LD 016

APPROVED
DEVELOPMENT SITE PLAN NO. _____
DEPARTMENT OF PLANNING & ZONING
_____ DIRECTOR _____ DATE
DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____
_____ DIRECTOR _____ DATE
_____ CHAIRMAN, PLANNING COMMISSION _____ DATE
DATE RECORDED _____
_____ INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO.

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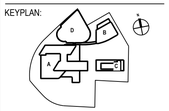
KEYPLAN:



SEAL:



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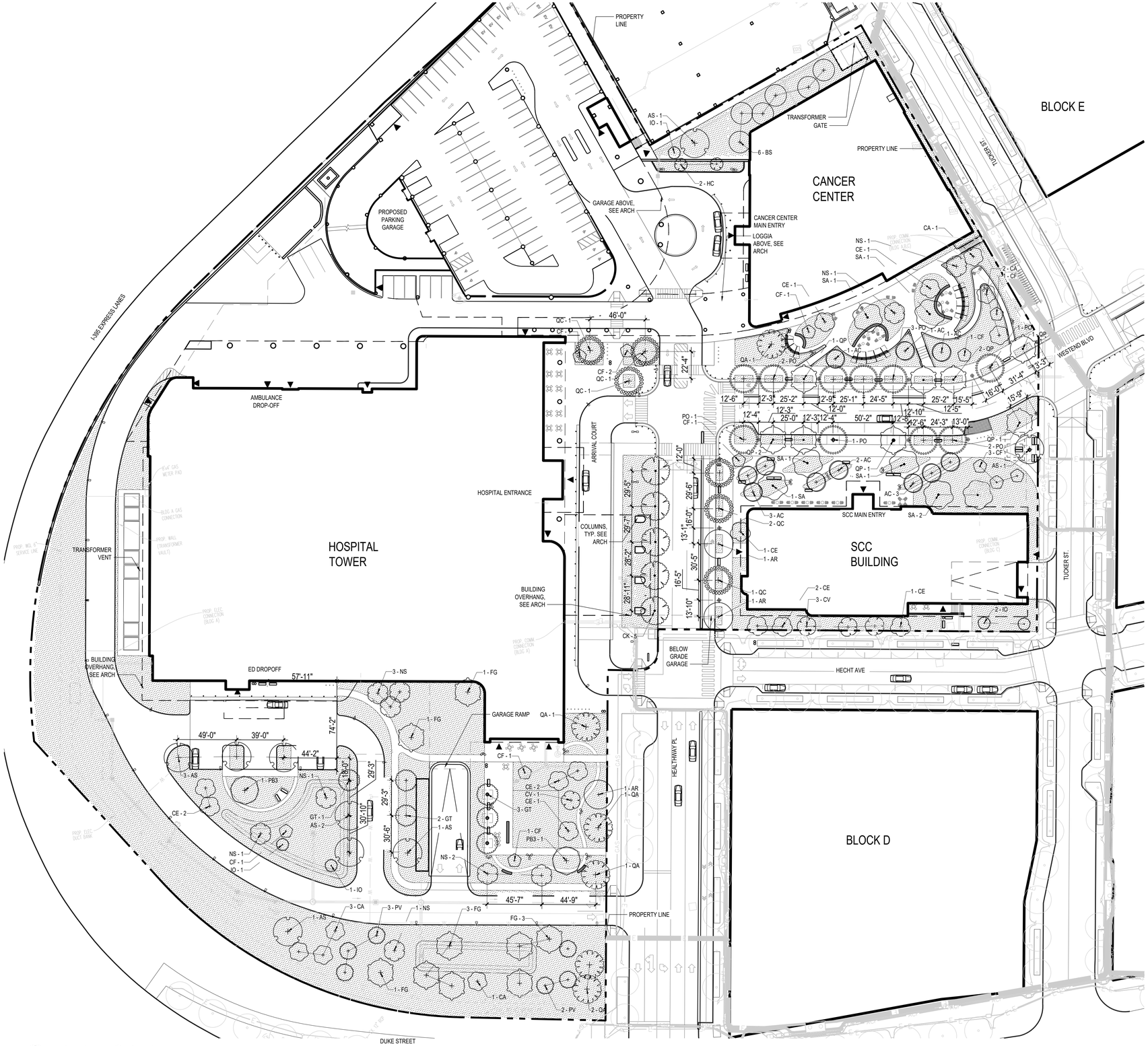
PROJECT:
SCALE:
TITLE:
BIODIVERSITY TABULATIONS
NUMBER:
L3.01



1 PLANTING PLAN
Scale: 1" = 40'-0"

0 20' 40' 80' 120'

NORTH

NOTES:
INFRASTRUCTURE AND LANDSCAPING BEYOND PROPERTY LINE TO BE PROVIDED BY OTHERS PURSUANT TO DSP #2021-00012

FURNITURE SCHEDULE

FURNITURE TYPE	SYMBOL
MOVABLE SEATING	
FIXED SEATING	
TREE GRATE	
WASTE RECEPTACLES	
BIKE RACKS	
BOLLARDS	
SHADE STRUCTURE	

KEY

	TREES ADJACENT TO PROPERTY LINE
	TREES WITHIN PROPERTY LINE
	PLANTED AREA
	STREET LIGHT
	POLE LIGHT

APPROVED

DEVELOPMENT SITE PLAN NO. _____

DEPARTMENT OF PLANNING & ZONING

_____ DIRECTOR _____ DATE

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____

_____ DIRECTOR _____ DATE

_____ CHAIRMAN, PLANNING COMMISSION _____ DATE

DATE RECORDED _____

_____ INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO.

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THE LIGHTING PRACTICE
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PHILADELPHIA, PA 19106
215.238.1644

BACK OF HOUSE
BOH LOGISTICS
17729 CLIFFBOURNE LANE
DERWOOD, MD 20855
240.400.0925

KEYPLAN:

SEAL:

COMMONWEALTH OF VIRGINIA
RODRIGO ABELA
LIC. 0406001401
LANDSCAPE ARCHITECT

DRAWING ISSUE

PROJECT:

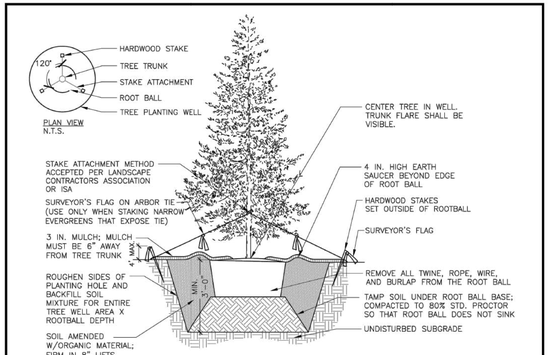
SCALE: 1"=40'-0"

TITLE:

LANDSCAPE PLAN
-PLANTING PLAN

NUMBER:

L4.00



NOTES

1. AT PLANTING PRUNE ONLY CROSSING LIMBS, BROKEN OR DEAD BRANCHES, AND ANY BRANCHES THAT POSE A HAZARD TO PEDESTRIANS PER ANSI STANDARDS A300. DO NOT PRUNE INTO OLD WOOD ON EVERGREENS.
2. CONTRACTOR SHALL MAXIMIZE EXCAVATED AREA FOR TREE WELL WITHOUT ADVERSELY IMPACTING ADJACENT SITE FEATURES
4. UNLESS OTHERWISE DIRECTED BY PROJECT SPECIFICATIONS OR CITY STAFF, SOIL MIXTURE SHALL BE CLEANED OF DEBRIS, AND MEET SOIL COMPOSITION REQUIREMENTS OF CITY OF ALEXANDRIA LANDSCAPE GUIDELINES.
5. TREES PLANTED WITHOUT THE TRUNK FLARE VISIBLE WILL BE REJECTED.
6. ALL PLANTS MUST BE WATERED AT INSTALLATION AND AGAIN WITHIN 48–HOURS OF INSTALLATION, ESTABLISHMENT WATERING SHALL BE PER THE SPECIFICATIONS ON ALL DETAILS.
7. STAKES WILL BE INSTALLED USING ARBORICULTURE PRACTICES, TREES SHALL STAND PLUM AFTER STAKING.
8. INSTALLATION WILL INCLUDE THE REMOVAL OF ALL STAKING MATERIAL ONE YEAR AFTER INSTALLATION. ANY HOLES LEFT BY REMOVING STAKING SHALL BE FILLED WITH APPROVED TOPSOIL / BACKFILL MIXTURE.
9. CONTRACTOR SHALL USE GALVANIZED EYESCREW & TURNBUCKLE INSTEAD OF ARBOR TIE ONLY FOR TREES OF SIGNIFICANT SIZE AS DIRECTED BY CITY STAFF.

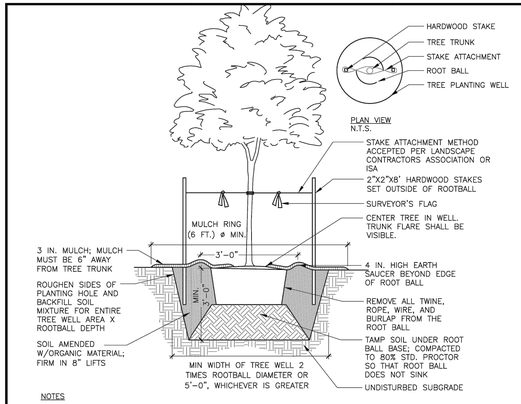
A EVERGREEN TREE PLANTING
NOT TO SCALE

OF UPDATES: 01 LAST UPDATED: 12/02/2019

CITY OF ALEXANDRIA, VIRGINIA STANDARD LANDSCAPE DETAILS — CITY OF ALEXANDRIA, VIRGINIA

NOTE: THE INFORMATION SHOWN HEREIN THIS DOCUMENT IS FOR GENERAL GUIDANCE ONLY AND IS NOT INTENTED FOR CONSTRUCTION PURPOSES. ITS USE SHALL NOT RELIEVE THE DESIGN PROFESSIONAL OR CONTRACTOR OF ANY LEGAL RESPONSIBILITY.

Source: CITY OF ALEXANDRIA	EVERGREEN TREE PLANTING
Approved by: COA	
1 OF 1	Date drawn: 01/01/19 — LD 002



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9. CONTRACTOR SHALL USE GALVANIZED EYESCREW & TURNBUCKLE INSTEAD OF ARBOR TIE ONLY FOR TREES OF SIGNIFICANT SIZE AS DIRECTED BY CITY STAFF.

A DECIDUOUS TREE PLANTING
NOT TO SCALE

OF UPDATES: 01 LAST UPDATED: 12/02/2019

CITY OF ALEXANDRIA, VIRGINIA STANDARD LANDSCAPE DETAILS — CITY OF ALEXANDRIA, VIRGINIA

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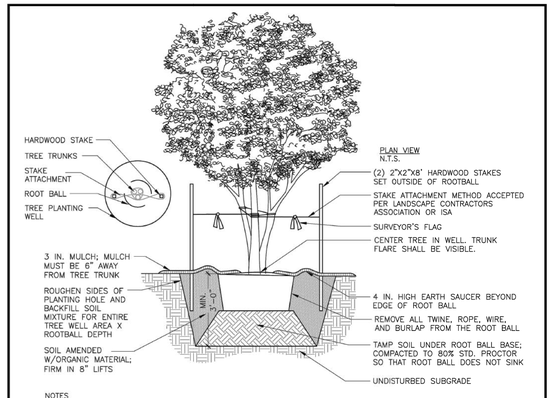
Source: CITY OF ALEXANDRIA	DECIDUOUS TREE PLANTING
Approved by: COA	
1 OF 1	Date drawn: 01/01/19 — LD 001



NOTES

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9. CONTRACTOR SHALL USE GALVANIZED EYESCREW & TURNBUCKLE INSTEAD OF ARBOR TIE ONLY FOR TREES OF SIGNIFICANT SIZE AS DIRECTED BY CITY STAFF.

A MULTI–STEM TREE PLANTING
NOT TO SCALE

OF UPDATES: 01 LAST UPDATED: 12/02/2019

CITY OF ALEXANDRIA, VIRGINIA STANDARD LANDSCAPE DETAILS — CITY OF ALEXANDRIA, VIRGINIA

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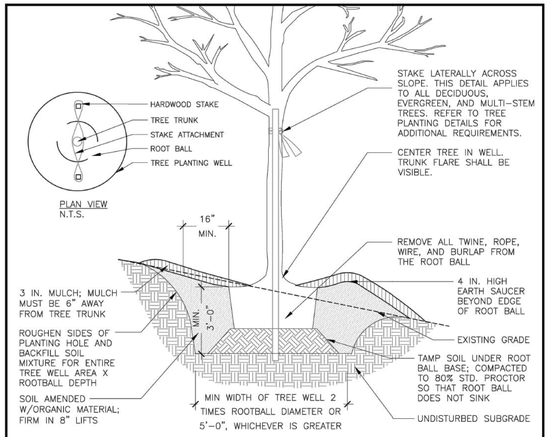
Source: CITY OF ALEXANDRIA	MULTI-STEM TREE PLANTING
Approved by: COA	
1 OF 1	Date drawn: 01/01/19 — LD 003



NOTES

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5. TREES PLANTED WITHOUT THE TRUNK FLARE VISIBLE WILL BE REJECTED.
6. REFER TO STAKING DETAILS.
7. ALL PLANTS MUST BE WATERED AT INSTALLATION AND AGAIN WITHIN 48–HOURS OF INSTALLATION, ESTABLISHMENT WATERING SHALL BE PER THE SPECIFICATIONS ON ALL DETAILS.

A TREE PLANTING ON SLOPE
NOT TO SCALE

OF UPDATES: 01 LAST UPDATED: 12/02/2019

CITY OF ALEXANDRIA, VIRGINIA STANDARD LANDSCAPE DETAILS — CITY OF ALEXANDRIA, VIRGINIA

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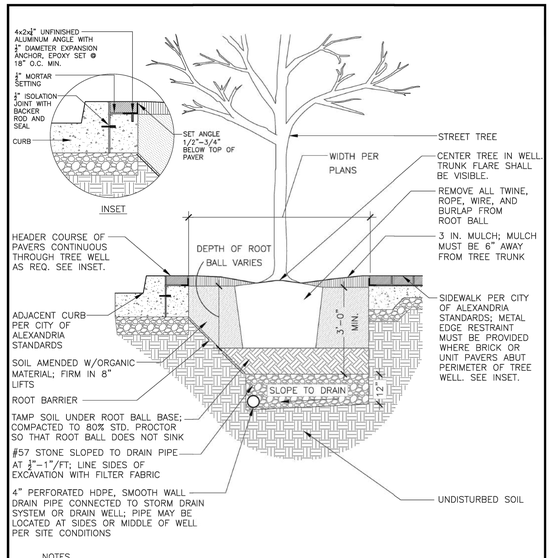
Source: CITY OF ALEXANDRIA	TREE PLANTING ON SLOPE
Approved by: COA	
1 OF 1	Date drawn: 01/01/19 — LD 004



NOTES

1. THIS CROSS–SECTION APPLIES TO BOTH TREE PLANTING STRIPS AND TREE PLANTING WELLS.
2. REFER TO LANDSCAPE GUIDELINES FOR GENERAL STREET TREE PLANTING NOTES.

A STREET TREE PLANTING WELL
NOT TO SCALE

OF UPDATES: 01 LAST UPDATED: 12/02/2019

CITY OF ALEXANDRIA, VIRGINIA STANDARD LANDSCAPE DETAILS — CITY OF ALEXANDRIA, VIRGINIA

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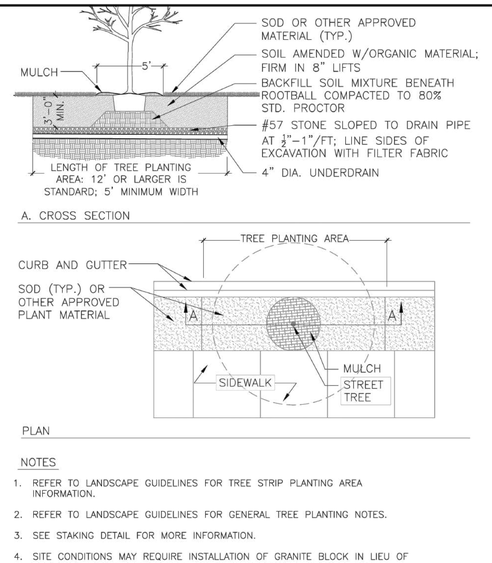
Source: CITY OF ALEXANDRIA	STREET TREE PLANTING WELL
Approved by: COA	
1 OF 1	Date drawn: 01/01/19 — LD 005



NOTES

1. REFER TO LANDSCAPE GUIDELINES FOR TREE STRIP PLANTING AREA INFORMATION.
2. REFER TO LANDSCAPE GUIDELINES FOR GENERAL TREE PLANTING NOTES.
3. SEE STAKING DETAIL FOR MORE INFORMATION.
4. SITE CONDITIONS MAY REQUIRE INSTALLATION OF GRANITE BLOCK IN LIEU OF SOD AND BRICK EDGE. SEE TREE WELL WITH GRANITE BLOCK DETAIL.
5. REFER TO STREET TREE WELL DETAIL FOR CROSS–SECTION.

A TREE PLANTING STRIP
NOT TO SCALE

OF UPDATES: 01 LAST UPDATED: 12/02/2019

CITY OF ALEXANDRIA, VIRGINIA STANDARD LANDSCAPE DETAILS — CITY OF ALEXANDRIA, VIRGINIA

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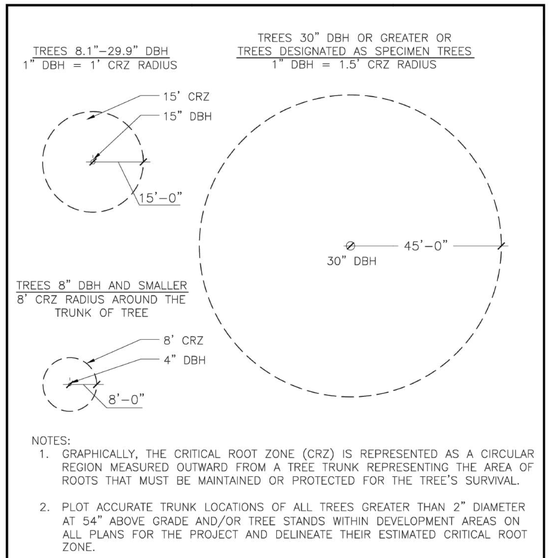
Source: CITY OF ALEXANDRIA	TREE PLANTING STRIP
Approved by: COA.	
1 OF 1	Date drawn: 01/01/19 — LD 006



NOTES:

1. GRAPHICALLY, THE CRITICAL ROOT ZONE (CRZ) IS REPRESENTED AS A CIRCULAR REGION MEASURED OUTWARD FROM A TREE TRUNK REPRESENTING THE AREA OF ROOTS THAT MUST BE MAINTAINED OR PROTECTED FOR THE TREE'S SURVIVAL.
2. PLOT ACCURATE TRUNK LOCATIONS OF ALL TREES GREATER THAN 2" DIAMETER AT 54" ABOVE GRADE AND/OR TREE STANDS WITHIN DEVELOPMENT AREAS ON ALL PLANS FOR THE PROJECT AND DELINEATE THEIR ESTIMATED CRITICAL ROOT ZONE.
3. PLOT ACCURATE TRUNK LOCATIONS OF OFFSITE TREES WHICH WILL HAVE THEIR CRZ AFFECTED BY DEVELOPMENT AND DELINEATE THEIR ESTIMATED CRITICAL ROOT ZONE.

A TREE PROTECTION DETAIL FOR DETERMINING CRITICAL ROOT ZONE
NOT TO SCALE

OF UPDATES: 00 LAST UPDATED:

CITY OF ALEXANDRIA, VIRGINIA STANDARD LANDSCAPE DETAILS — CITY OF ALEXANDRIA, VIRGINIA

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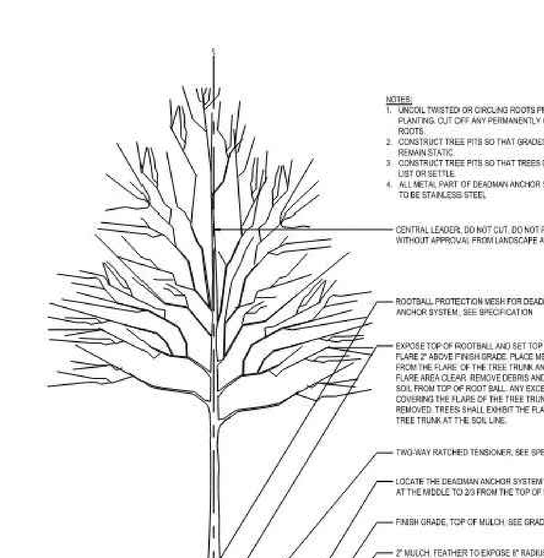
Source: CITY OF ALEXANDRIA	CRITICAL ROOT ZONE
Approved by: COA	
1 OF 1	Date drawn: 01/01/19 — LD 013



03 SECTION TYP - TREE ON STRUCTURE
SCALE: 1/4"=1'-0"

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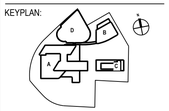
KEYPLAN:



SEAL:

COMMONWEALTH OF VIRGINIA
RODRIGO ABELA
LIC. 0406001401
LANDSCAPE ARCHITECT

DRAWING ISSUE

PROJECT:

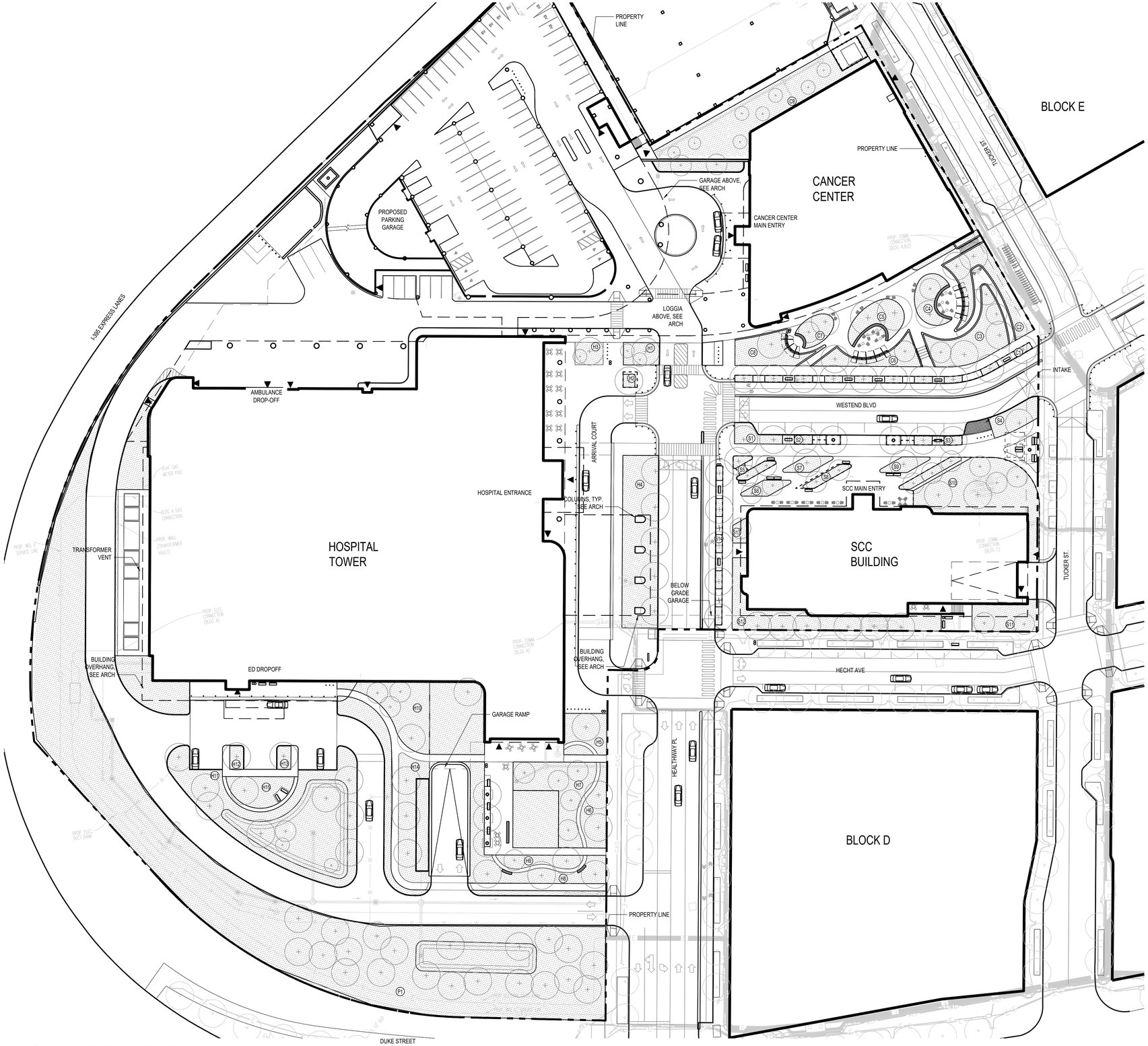
SCALE:

TITLE:

PLANTING DETAILS

NUMBER:

L4.01



1 LANDSCAPE SOILS PLAN
Scale: 1" = 40'-0"

NOTES:
INFRASTRUCTURE AND LANDSCAPING BEYOND PROPERTY LINE TO BE PROVIDED BY OTHERS PURSUANT TO DSP #2021-00012

SOIL VOLUME TABLE

SOIL AREA	NUMBER OF TREES	DEPTH (FT)	AREA (SF)	PROPOSED VOLUME (CF)	REQUIRED VOLUME (CF)	NOTES
SPECIALTY CARE CENTER						
S1	2	3	245	735	300 PER TREE (MULTIPLE) (600 CF TOTAL)	
S2	2	3	250	750	300 PER TREE (MULTIPLE) (600 CF TOTAL)	W/ CONTINUOUS SOIL PANEL
S3	3	3	395	1,185	300 PER TREE (MULTIPLE) (900 CF TOTAL)	W/ CONTINUOUS SOIL PANEL
S4	1	3	790	2,370	450 PER INDIVIDUAL TREE	
S5	3	3	350	1,050	300 PER TREE (MULTIPLE) (900 CF TOTAL)	W/ CONTINUOUS SOIL PANEL
S6	2	3	330	990	300 PER TREE (MULTIPLE) (600 CF TOTAL)	
S7	1	3	330	990	450 PER INDIVIDUAL TREE	
S8	2	3	300	900	300 PER TREE (MULTIPLE) (600 CF TOTAL)	W/ CONTINUOUS SOIL PANEL
S9	1	3	330	990	450 PER INDIVIDUAL TREE	
S10	8	3	4630	13,890	300 PER TREE (MULTIPLE) (2,400 CF TOTAL)	W/ CONTINUOUS SOIL PANEL
S11	2	3	1,270	3,810	300 PER TREE (MULTIPLE) (600 CF TOTAL)	
S12	6	3	2,466	7,398	300 PER TREE (MULTIPLE) (1,800 CF TOTAL)	
S13	1	3	220	660	450 PER INDIVIDUAL TREE	
S14	5	3	725	2,175	300 PER TREE (MULTIPLE) (900 CF TOTAL)	W/ CONTINUOUS SOIL PANEL
CANCER CENTER						
C1	10	3	1,140	3,420	300 PER TREE (MULTIPLE) (3,000 CF TOTAL)	W/ CONTINUOUS SOIL PANEL
C2	2	3	765	2,295	300 PER TREE (MULTIPLE) (600 CF TOTAL)	
C3	5	3	1,990	5,970	300 PER TREE (MULTIPLE) (1,500 CF TOTAL)	
C4	2	3	1,020	3,060	300 PER TREE (MULTIPLE) (600 CF TOTAL)	
C5	2	3	1,020	3,060	300 PER TREE (MULTIPLE) (600 CF TOTAL)	
C6	2	3	1,020	3,060	300 PER TREE (MULTIPLE) (600 CF TOTAL)	
C7	2	3	535	1,605	300 PER TREE (MULTIPLE) (600 CF TOTAL)	
C8	1	3	1,250	3,750	450 PER INDIVIDUAL TREE	
C9	10	3	4,642	13,926	300 PER TREE (MULTIPLE) (3,000 CF TOTAL)	
HOSPITAL						
H1	3	3	560	1,680	300 PER TREE (MULTIPLE) (900 CF TOTAL)	
H2	1	3	150	450	450 PER INDIVIDUAL TREE	W/ CONTINUOUS SOIL PANEL
H3	2	3	437	1,311	300 PER TREE (MULTIPLE) (600 CF TOTAL)	
H4	5	3	4,235	12,705	300 PER TREE (MULTIPLE) (1,500 CF TOTAL)	
H5	1	3	975	2,925	450 PER INDIVIDUAL TREE	
H6	2	3	1,055	3,165	300 PER TREE (MULTIPLE) (600 CF TOTAL)	
H7	5	3	2,435	7,305	300 PER TREE (MULTIPLE) (1,500 CF TOTAL)	
H8	6	3	2,860	8,580	300 PER TREE (MULTIPLE) (1,800 CF TOTAL)	
H9	2	3	676	2,028	300 PER TREE (MULTIPLE) (600 CF TOTAL)	
H10	4	3	2,884	6,852	300 PER TREE (MULTIPLE) (1,200 CF TOTAL)	
H11	11	3	8,923	26,769	300 PER TREE (MULTIPLE) (3,300 CF TOTAL)	
H12	1	3	221	663	450 PER INDIVIDUAL TREE	
H13	1	3	221	663	450 PER INDIVIDUAL TREE	
H14	3	3	8,923	26,769	300 PER TREE (MULTIPLE) (3,300 CF TOTAL)	
PERIMETER						
P1	22	3	38,678	116,034	300 PER TREE (MULTIPLE) (6,600 CF TOTAL)	

KEY

·	TREES ADJACENT TO PROPERTY LINE
+	TREES WITHIN PROPERTY LINE
	PLANTED AREA
⊕	STREET LIGHT
⊶	POLE LIGHT
-	ACCENT LIGHT

APPROVED
DEVELOPMENT SITE PLAN NO. _____
DEPARTMENT OF PLANNING & ZONING
_____ DIRECTOR _____ DATE
DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____
_____ DIRECTOR _____ DATE
_____ CHAIRMAN, PLANNING COMMISSION _____ DATE
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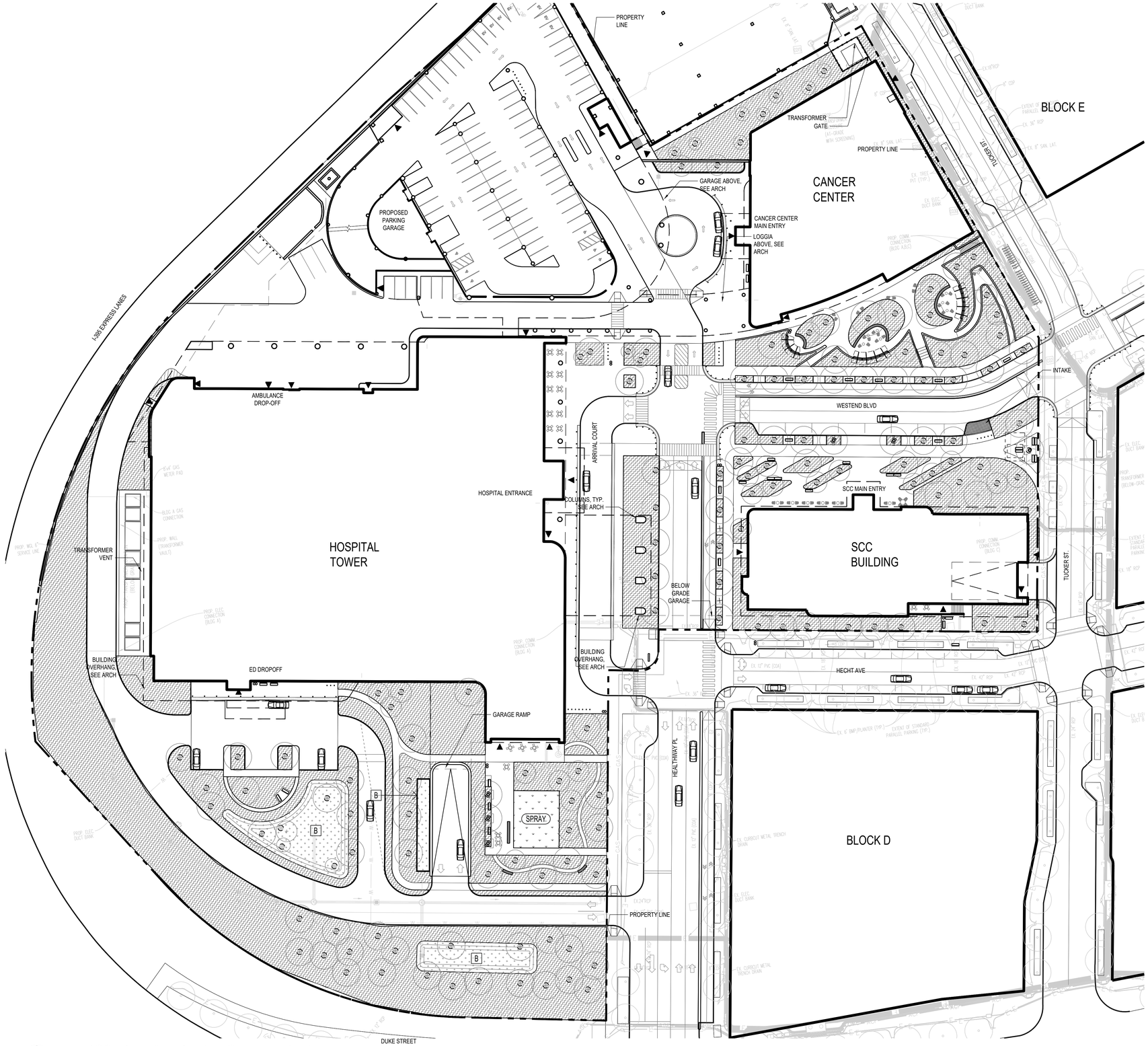
COMMONWEALTH OF VIRGINIA
RODRIGO ABELA
LIC. NO. 0406001401
LANDSCAPE ARCHITECT

DRAWING ISSUE

PROJECT:
SCALE: 1"=50'-0"
TITLE:
LANDSCAPE SOILS LAN
NUMBER:
L5.00



1 LANDSCAPE WATER MANAGEMENT PLAN
Scale: 1" = 40'-0"

LANDSCAPE WATER MANAGEMENT NOTES

1. THE OWNER SHALL BE RESPONSIBLE FOR WATERING PLAN MATERIAL ON THE PROPERTY AND WITHIN THE ADJACENT RIGHT-OF-WAY TO SUSTAIN VIGOROUS PLANT GROWTH.

2. ESTABLISHMENT PERIOD
THE IRRIGATION ESTABLISHMENT PERIOD FOR NEW VEGETATION SHALL BEGIN AT THE TIME OF PLANTING UNTIL THE RELEASE OF THE MAINTENANCE BOND ACCORDING TO THE FOLLOWING STANDARDS:

A. TREES SHALL BE WATERED AT A MINIMUM RATE OF TWENTY (20) TO TWENTY-FIVE (25) GALLONS, OR 1.5 INCHES, PER WEEK DURING THE PERIOD OF MARCH 1 - DECEMBER 1 FOR THE ESTABLISHMENT PERIOD, INCLUDING RAINFALL AND WEATHER DEPENDENT.

B. SHRUBS, HERBACEOUS PLANTS, GROUNDCOVER AND OTHER VEGETATION SHALL BE WATERED AT A MINIMUM ONE (1) INCH PER WEEK DURING THE PERIOD OF MARCH 1 - DECEMBER 1, OR WHEN TEMPERATURES ARE SUSTAINED ABOVE FORTY (40) DEGREES FAHRENHEIT. FOR THE ESTABLISHMENT PERIOD, INCLUDING RAINFALL

C. TURF GRASS/LAWN AREAS REQUIRE INTENSIVE WATER MANAGEMENT AND MONITORING DURING INSTALLATION AND ESTABLISHMENT. CONTINUE TO WATER AT A RATE OF ONE (1) INCH PER WEEK, INCLUDING RAINFALL, ESPECIALLY IN SUMMER MONTHS.

D. LAWN AREAS SHALL BE IRRIGATED IN ACCORDANCE WITH THE STANDARDS AS SPECIFIED IN THE LATEST VERSION OF THE LANDSCAPE SPECIFICATION GUIDELINES: PART 6 - SEEDING AND SODDING, AS PUBLISHED BY THE LANDSCAPE CONTRACTORS ASSOCIATION OF MD, DC, AND VA.

3. BEYOND THE PERIOD OUTLINED ABOVE, ALL PLANTINGS SHALL BE WATERED BY HAND AS NECESSARY THROUGHOUT THE GROWING SEASON AND PER THE ABOVE REQUIREMENTS.

A.. WHEN USING HOSES FOR HAND WATERING, HOSES MAY NOT BE LEFT UN-STORED WHEN WATERING IS NOT TAKING PLACE.

B. WATER SOURCES MAY INCLUDE TANKS, TRUCKS, EXTERIOR BUILDING FAUCETS, OR RAIN HARVESTING BARRELS/CISTERNS.

WATER MANAGEMENT SCHEDULE

SYMBOL	NOTE
TYPE 1 - SHRUBS	AUTOMATIC DRIP-IRRIGATION
TYPE 2 - TURF	AUTOMATIC POP-UP SPRAY
TYPE 3 - BIORETENTION	AUTOMATIC POP-UP SPRAY (TEMPORARY)
TYPE 4 - TREES	AUTOMATIC BUBBLERS (2 PER TREE)

KEY

	TREES ADJACENT TO PROPERTY LINE
	TREES WITHIN PROPERTY LINE
	PLANTED AREA
	STREET LIGHT
	POLE LIGHT
	ACCENT LIGHT

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DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____
_____ DIRECTOR _____ DATE
_____ CHAIRMAN, PLANNING COMMISSION _____ DATE
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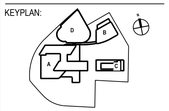
KEYPLAN:



SEAL:



DRAWING ISSUE

PROJECT:
SCALE: 1"=50'-0"

TITLE:
LANDSCAPE WATER MANAGEMENT PLAN

NUMBER:
L6.00



1 **CAMPUS MASSING**
SOUTHEAST AERIAL PERSPECTIVE

NOTE: RENDERINGS ARE FOR ILLUSTRATIVE PURPOSES

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DRAWING ISSUE

PROJECT: 21042.00

SCALE:
Author

TITLE:
CAMPUS MASSING

NUMBER:
A000



1" = 50'-0" 4 THIRD FLOOR PLAN
FLOOR PLAN



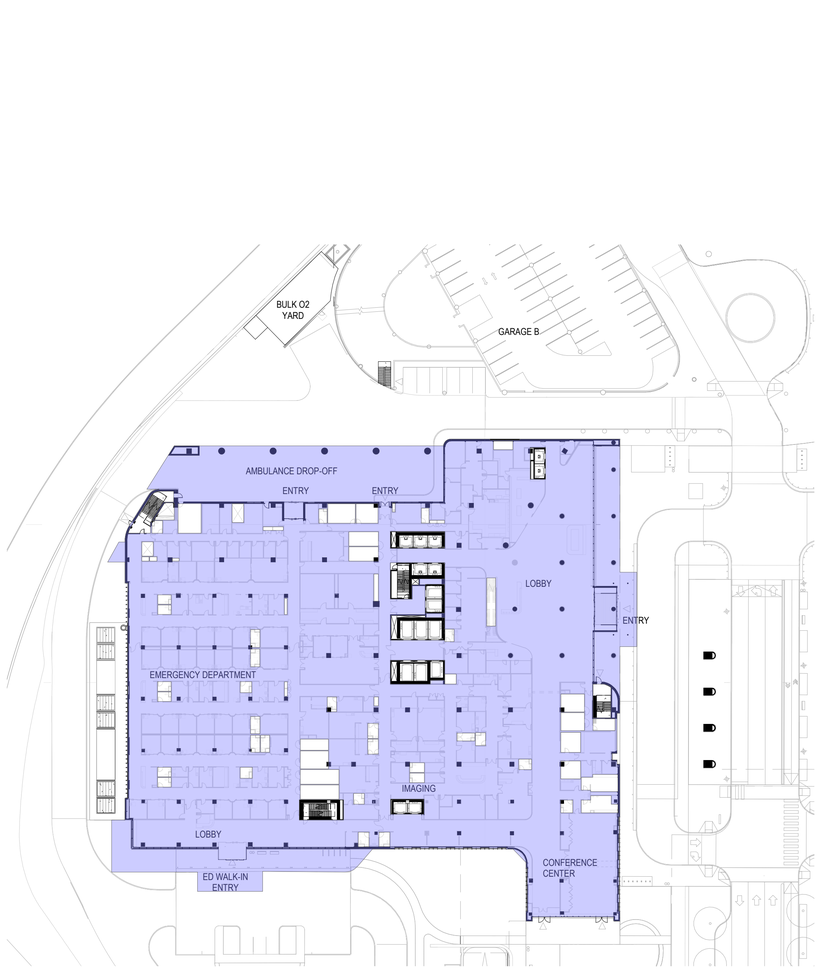
1" = 50'-0" 3 SECOND FLOOR PLAN
FLOOR PLAN

Hospital Building A Calculations

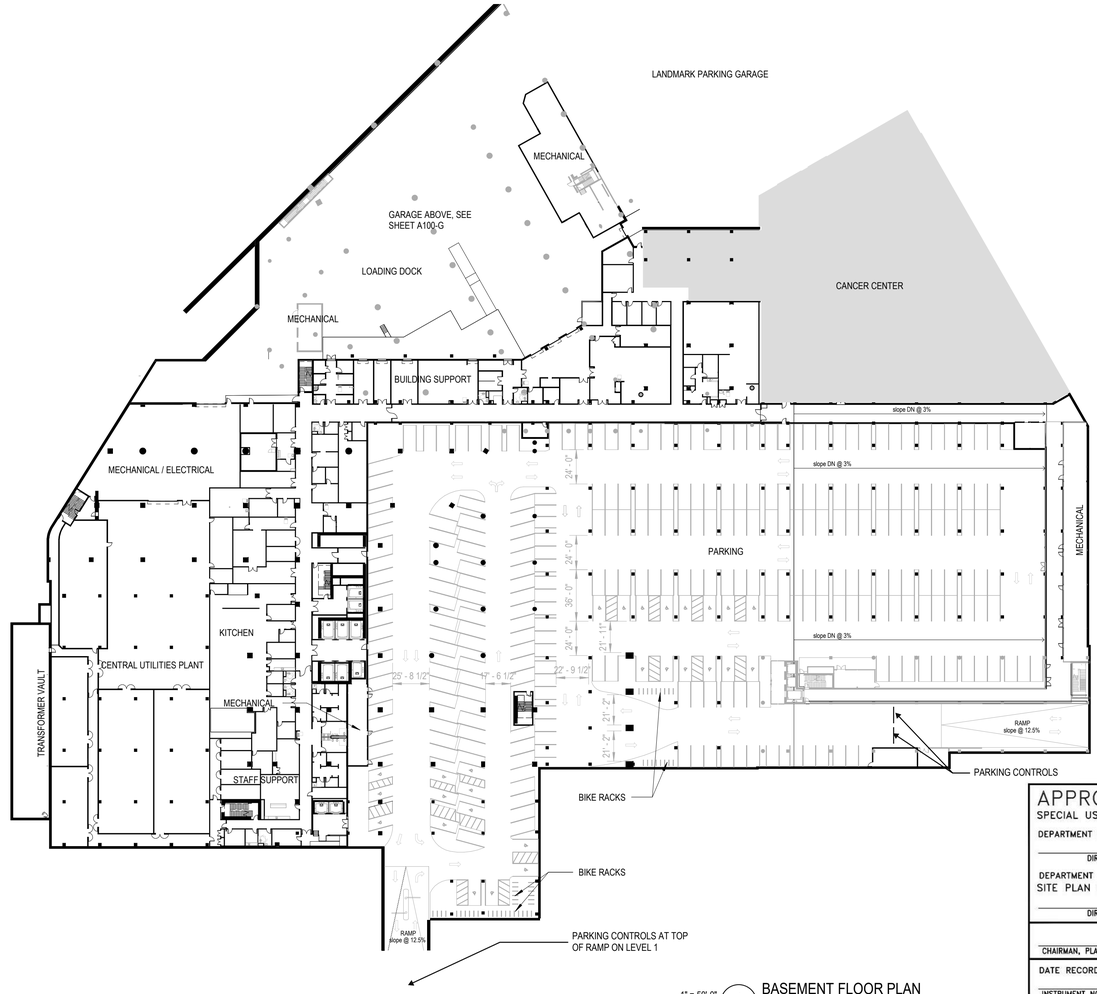
Floor #	Gross Area	Vert Circ Deduct	MEP Deduct	# Lavs	sf per lav	Lavs less that 50 sf	Total Lav Deduction	Net Area
B	NA	NA	NA	0	50	0	0	NA
1	103,906	-3,940	-4,133	32	50	0	-1600	94,233
2	91,995	-3,794	-3,966	27	50	0	-1350	82,885
3	78,489	-3,962	-28,319	11	50	0	-550	45,658
4	49,598	-3,254	-9,516	29	50	0	-1450	35,378
5	41,266	-2,666	-2,294	37	50	0	-1850	34,456
6	49,598	-2,473	-2,721	46	50	0	-2300	42,104
7	49,598	-2,473	-2,773	54	50	0	-2700	41,652
8	49,598	-2,473	-2,773	54	50	0	-2700	41,652
9	49,598	-2,473	-2,849	54	50	0	-2700	41,576
PH	5,468	2,027	-1,103	0	50	0	0	0
	Total Gross Area							Total Net Area
	569,114							459,594

Area Legend

	Gross Area
	Vert Circ + MEP Deductions
	Lavatories



1" = 50'-0" 2 FIRST FLOOR PLAN
FLOOR PLAN



1" = 50'-0" 1 BASEMENT FLOOR PLAN
FLOOR PLAN

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DRAWING ISSUE

PROJECT: 21042.00

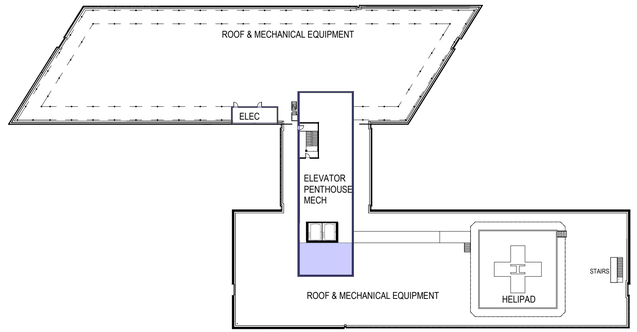
SCALE: 1" = 50'-0"

TITLE:

BUILDING A
HOSPITAL PLANS

NUMBER:

A100 - A



1" = 50'-0" 4 ROOF / HELIPAD PLAN
FLOOR PLAN



1" = 50'-0" 3 FIFTH FLOOR PLAN
FLOOR PLAN



1" = 50'-0" 2 SIXTH THRU NINTH FLOOR PLANS
FLOOR PLAN



1" = 50'-0" 1 FOURTH FLOOR PLAN
FLOOR PLAN

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DRAWING ISSUE

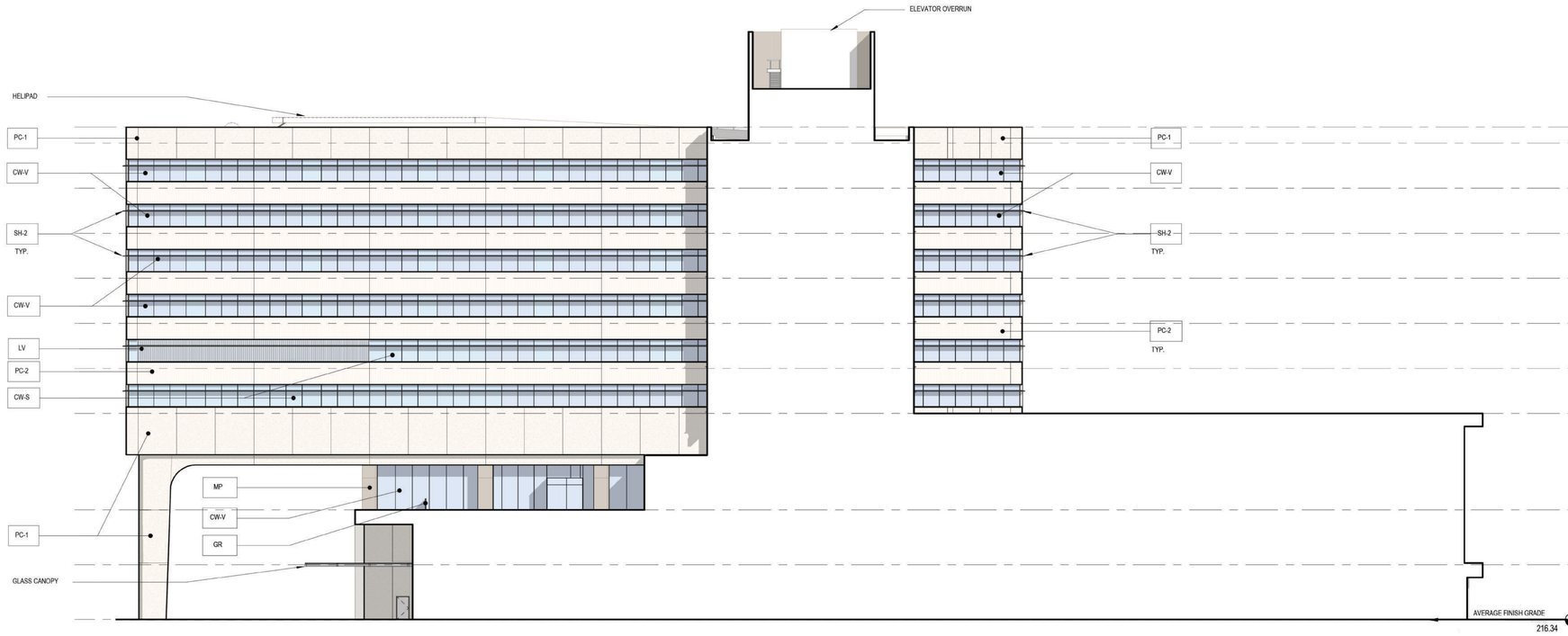
PROJECT: 21042.00
SCALE: 1" = 50'-0"

TITLE:

BUILDING A
HOSPITAL PLANS

NUMBER:

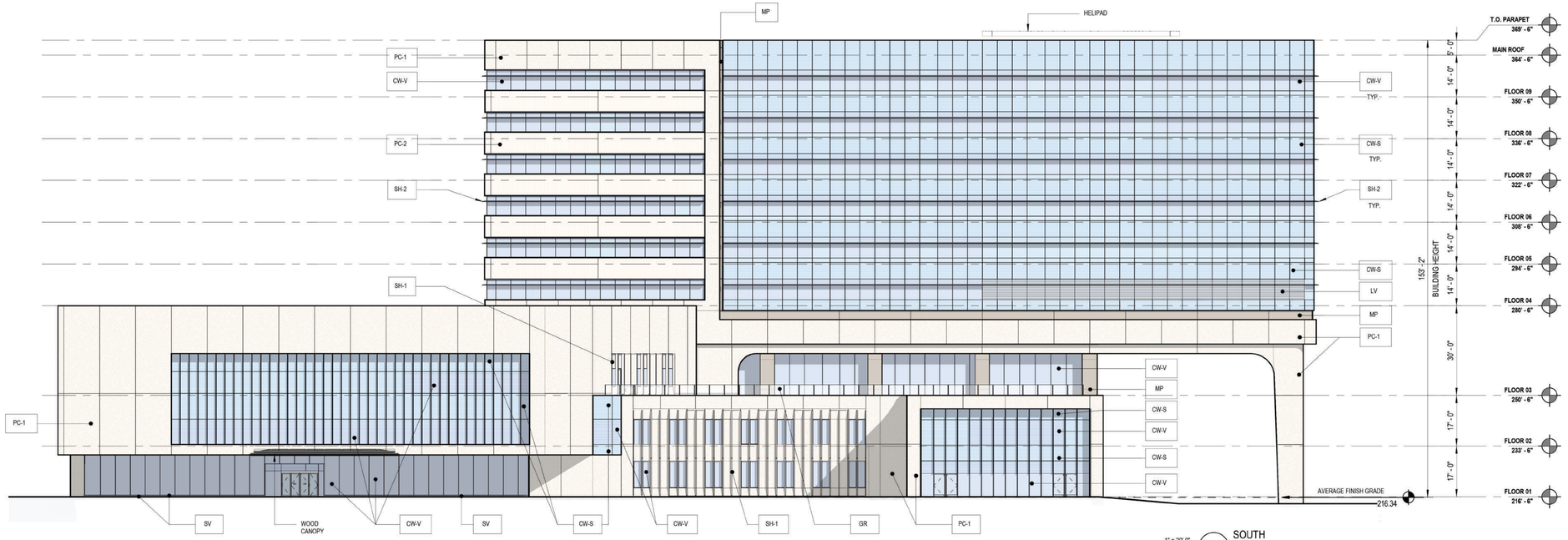
A101 - A



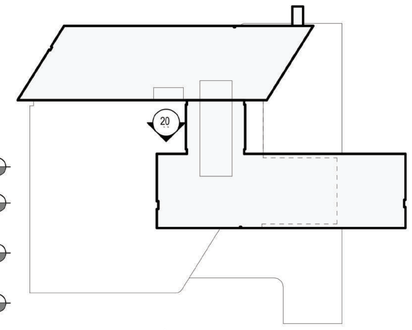
1" = 20'-0" 20 NORTH ELEVATION

EXTERIOR MATERIAL KEY

PC-1	PRE-CAST CONCRETE PANELS SMOOTH
PC-2	PRE-CAST CONCRETE PANELS TEXTURED
CW-V	CURTAIN WALL VISION GLASS
CW-S	CURTAIN WALL WITH SHADOW BOX SPANDREL GLASS
GR	GLASS GUARDRAIL
SV	STONE VENEER
MP	METAL PANEL
SH-1	SHADING DEVICE CONCRETE
SH-2	SHADING DEVICE METAL
LV	LOUVERS



1" = 20'-0" 10 SOUTH ELEVATION



1" = 80'-0" HOSPITAL ELEVATIONS KEY PLAN

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PROJECT: 21042.00

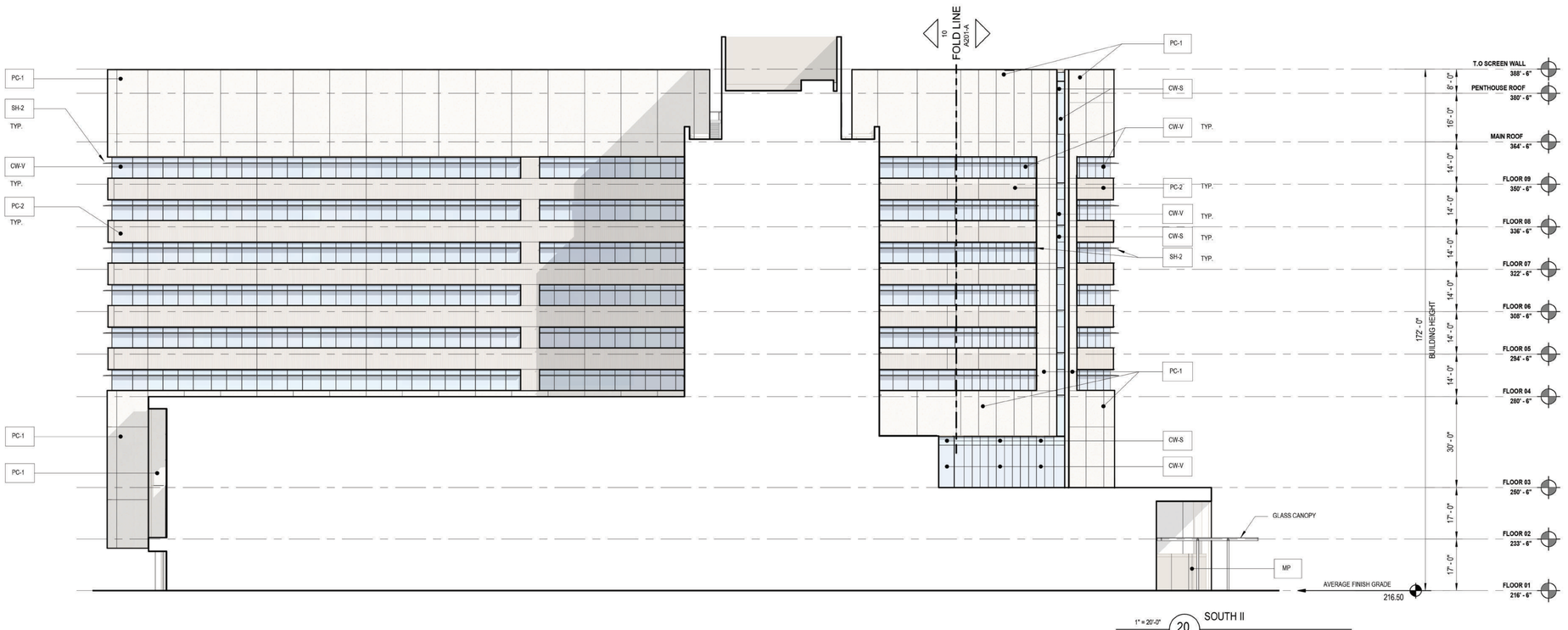
SCALE: As Indicated

TITLE:

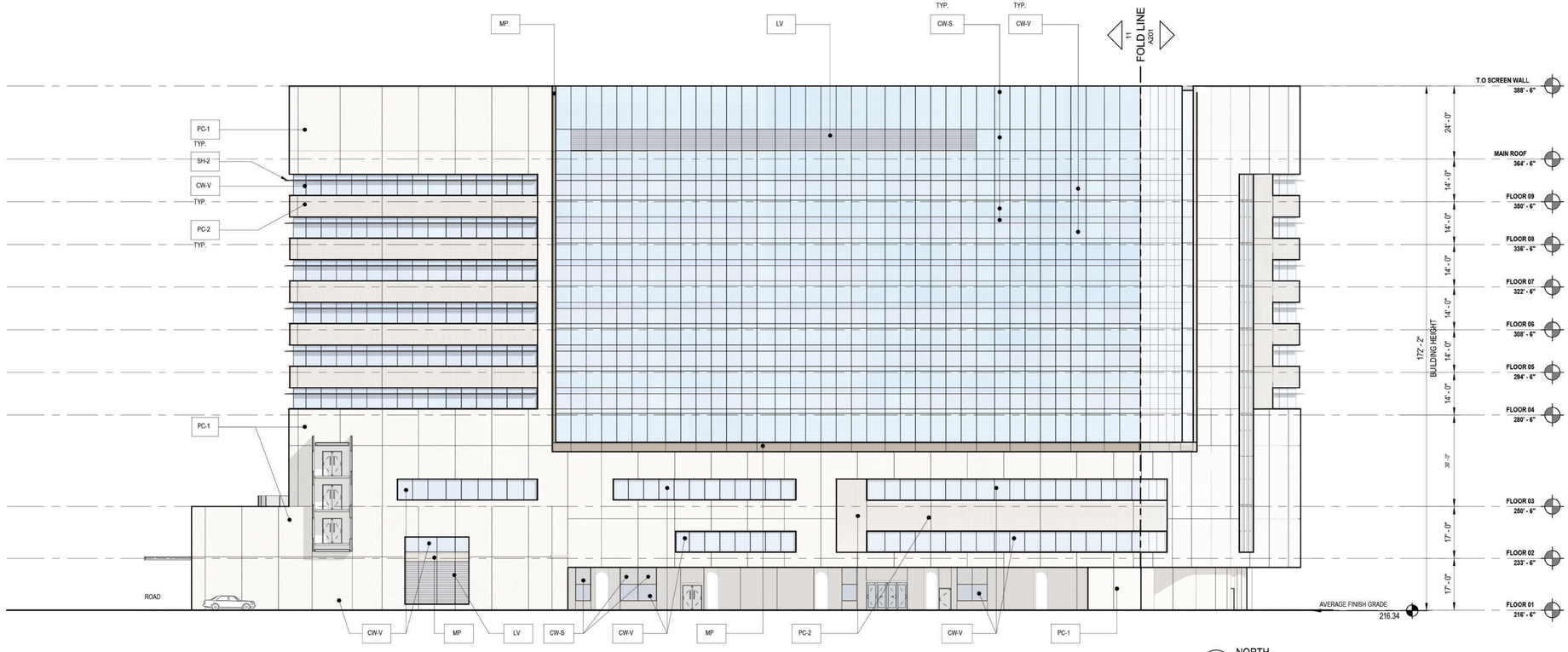
BUILDING A HOSPITAL ELEVATIONS

NUMBER:

A200-A



1" = 20'-0" 20 SOUTH II ELEVATION



1" = 20'-0" 10 NORTH ELEVATION

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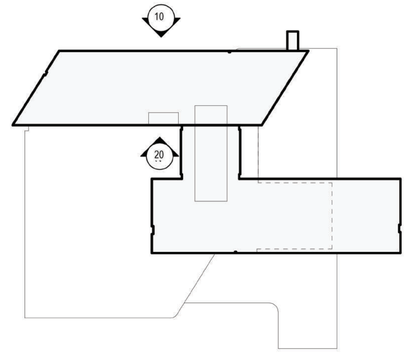

1" = 80'-0" HOSPITAL ELEVATIONS KEY PLAN

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DRAWING ISSUE

PROJECT: 21042.00

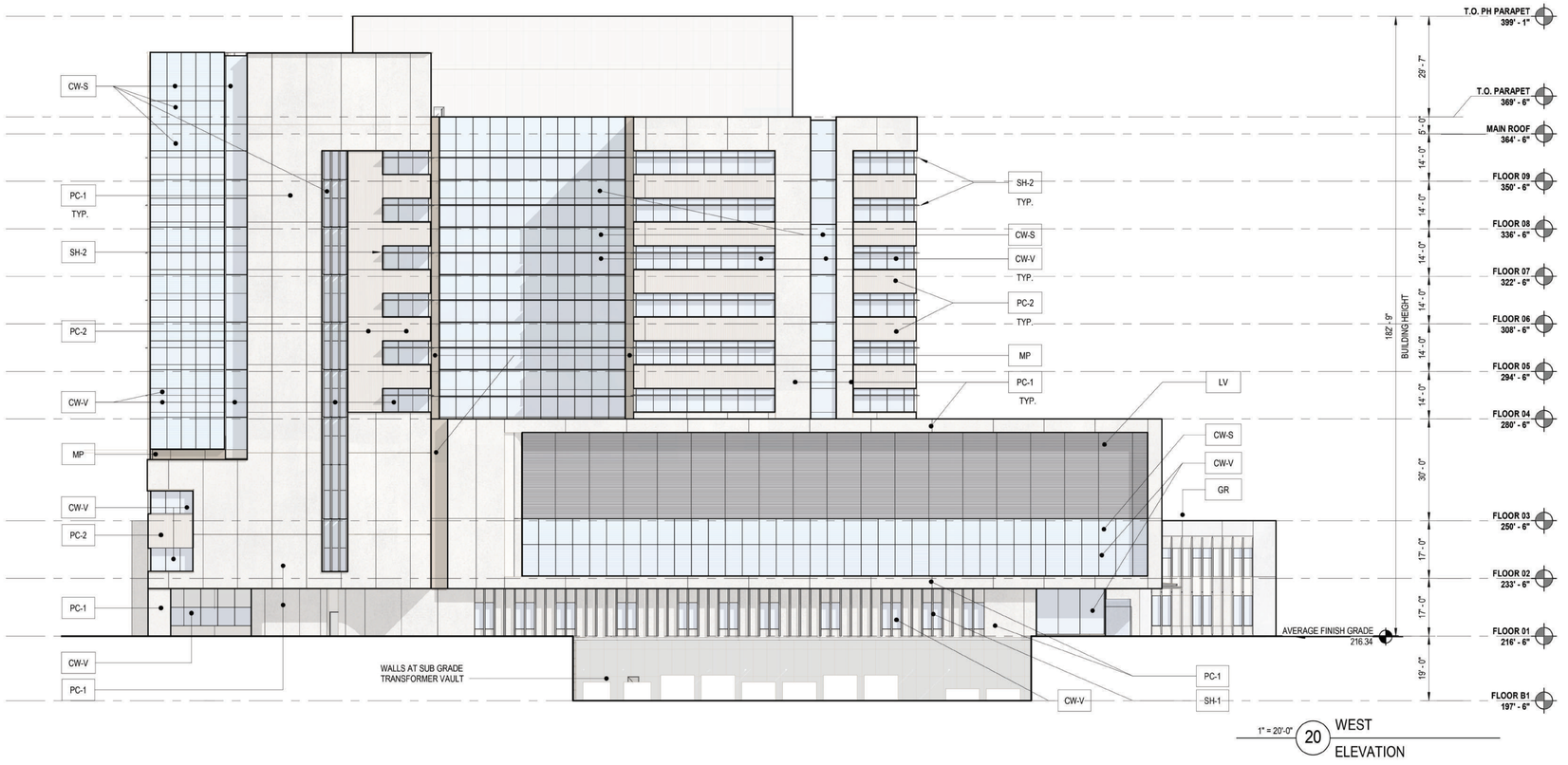
SCALE: As indicated

TITLE:

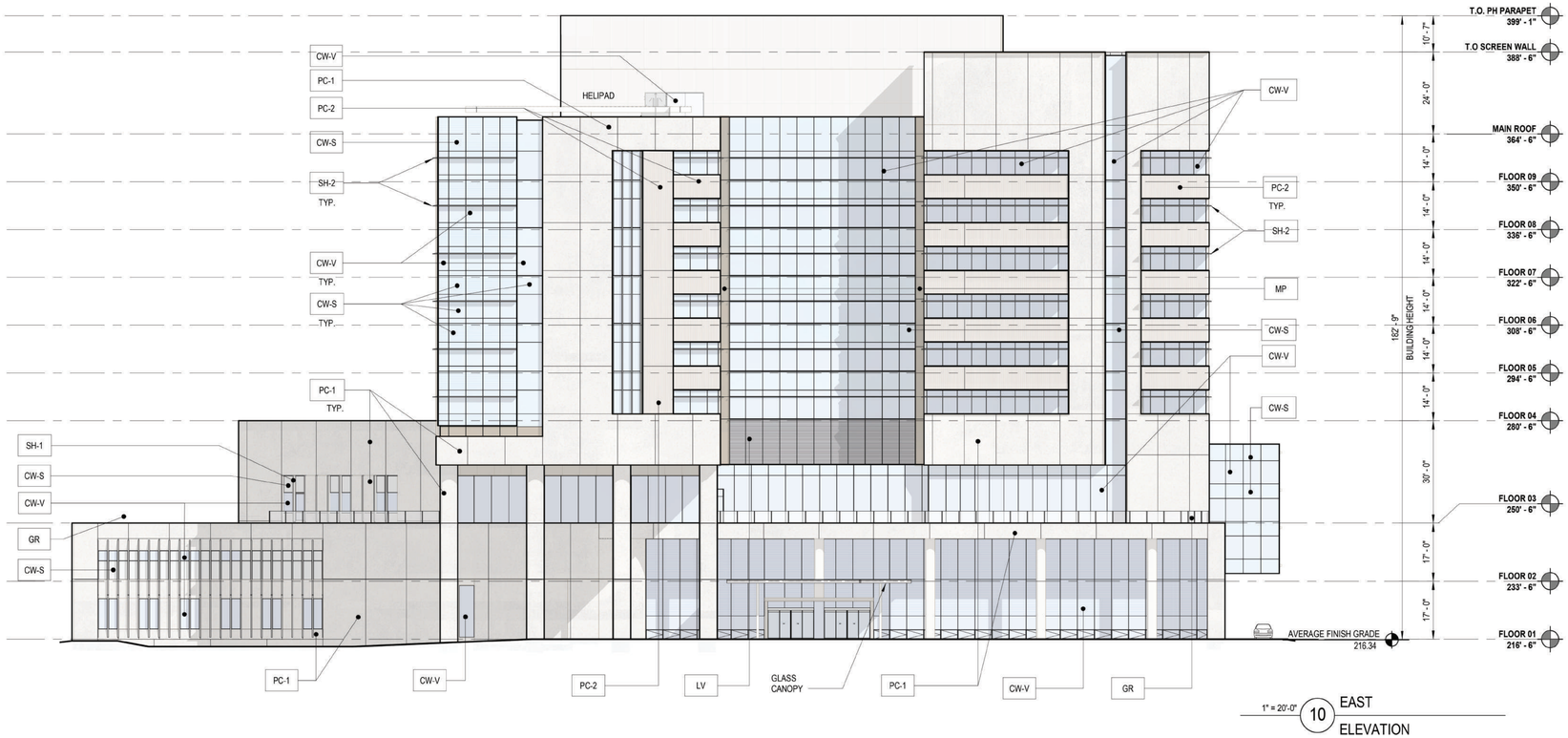
BUILDING A HOSPITAL ELEVATIONS

NUMBER:

A201-A



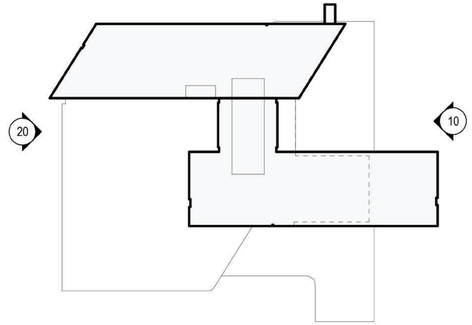
1" = 20'-0" 20 WEST ELEVATION



1" = 20'-0" 10 EAST ELEVATION

EXTERIOR MATERIAL KEY

- PC-1 — PRE-CAST CONCRETE PANELS SMOOTH
- PC-2 — PRE-CAST CONCRETE PANELS TEXTURED
- CW-V — CURTAIN WALL VISION GLASS
- CW-S — CURTAIN WALL WITH SHADOW BOX SPANDREL GLASS
- GR — GLASS GUARDRAIL
- SV — STONE VENEER
- MP — METAL PANEL
- SH-1 — SHADING DEVICE CONCRETE
- SH-2 — SHADING DEVICE METAL
- LV — LOUVERS



1" = 80'-0" HOSPITAL ELEVATIONS KEY PLAN

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_____ DIRECTOR _____ DATE
DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____
_____ DIRECTOR _____ DATE
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DATE RECORDED _____
_____ INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO.

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DRAWING ISSUE

PROJECT: 21042.00

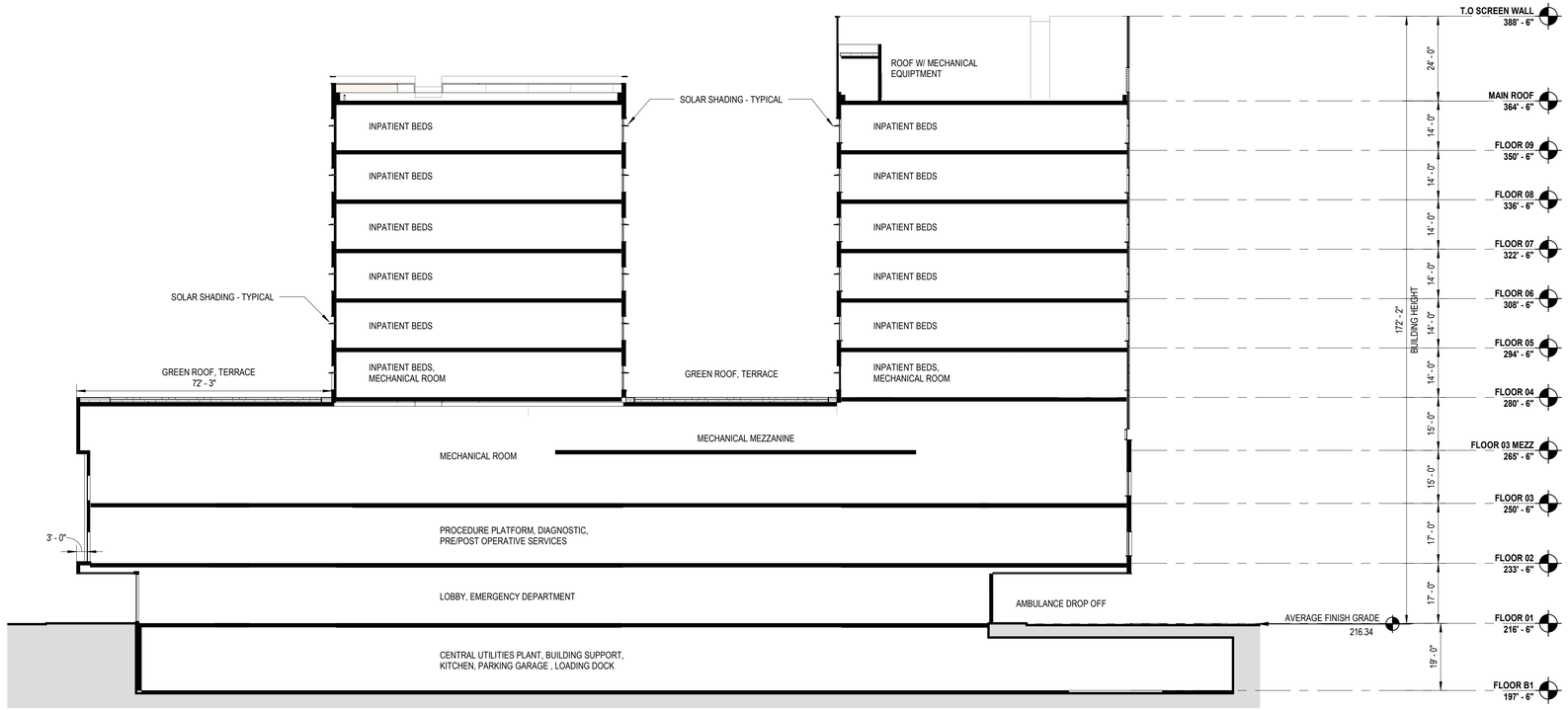
SCALE: As indicated

TITLE:

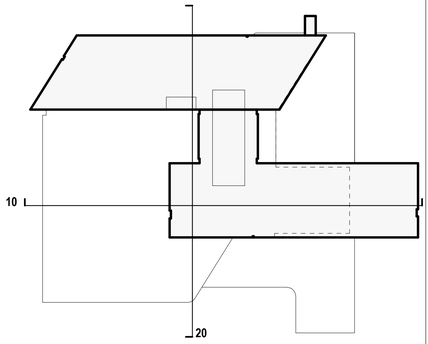
BUILDING A HOSPITAL ELEVATIONS

NUMBER:

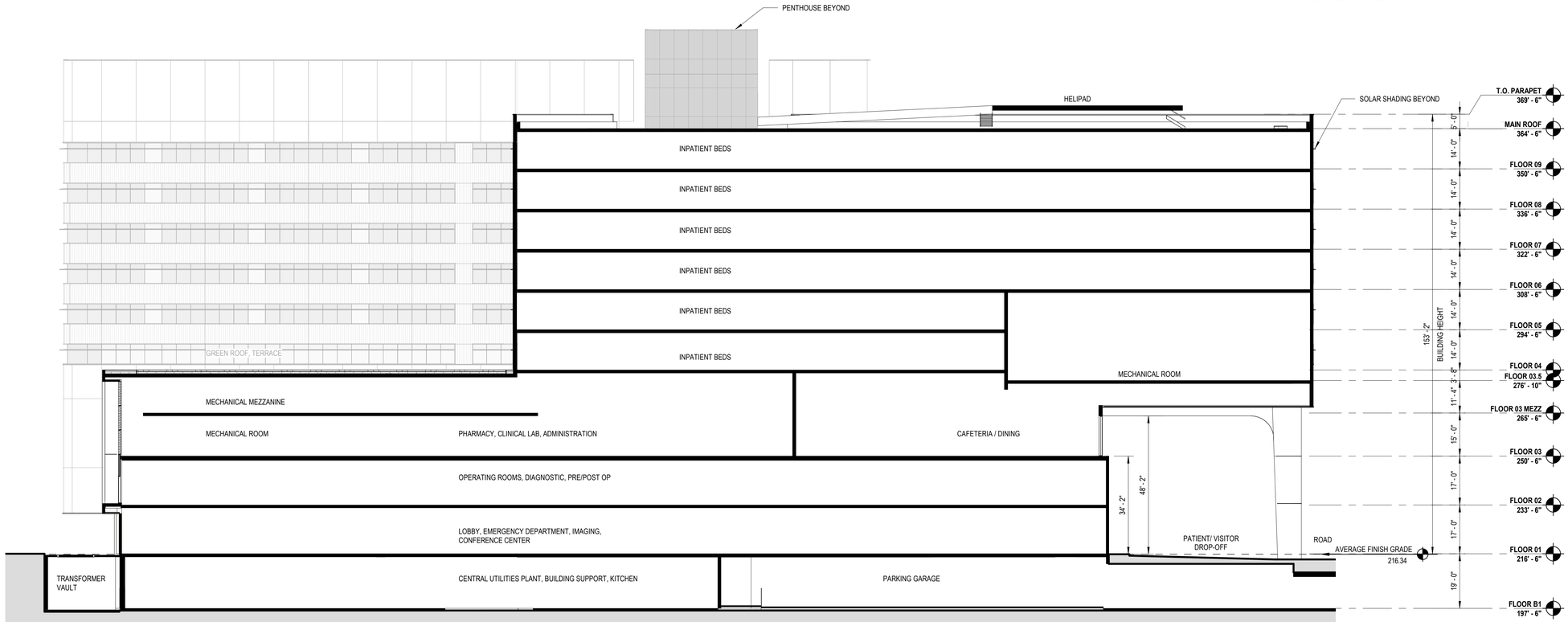
A202-A



1" = 20'-0" 20 N-S THRU PODIUM, TOWERS BUILDING SECTION



KEYPLAN



1" = 20'-0" 10 E-W THRU PODIUM BUILDING SECTION

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DRAWING ISSUE

PROJECT: 21042.00

SCALE: As indicated

TITLE:

BUILDING A BUILDING SECTIONS

NUMBER:

A300-A



21 **HOSPITAL MASSING**
ENLARGED VIEW OF MAIN ENTRY



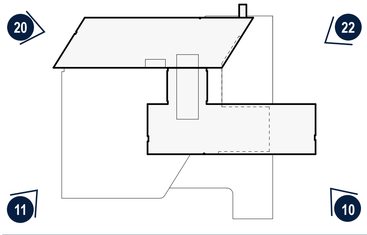
20 **HOSPITAL MASSING**
VIEW FROM WEST



11 **HOSPITAL MASSING**
VIEW FROM SOUTHWEST



10 **HOSPITAL MASSING**
VIEW FROM DUKE STREET & ROAD 3 ENTRY



KEY PLAN

NOTE: RENDERINGS ARE FOR ILLUSTRATIVE PURPOSES

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CHAIRMAN, PLANNING COMMISSION _____ DATE _____
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DRAWING ISSUE

PROJECT: 21042.00

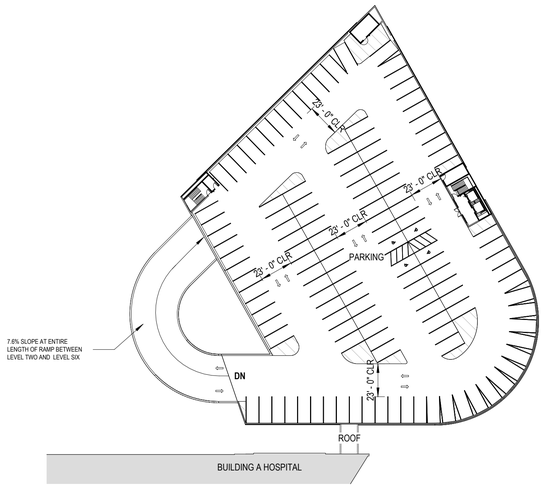
SCALE: Author

TITLE:

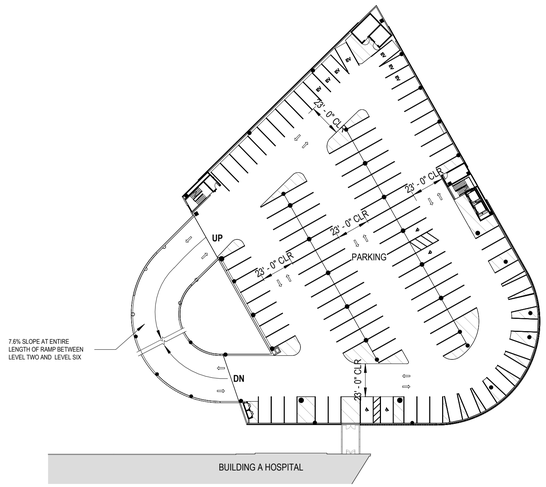
BUILDING A
HOSPITAL
MASSING IMAGES

NUMBER:

A400-A



1" = 50'-0" 22 FLOOR PLAN
SIXTH FLOOR PLAN



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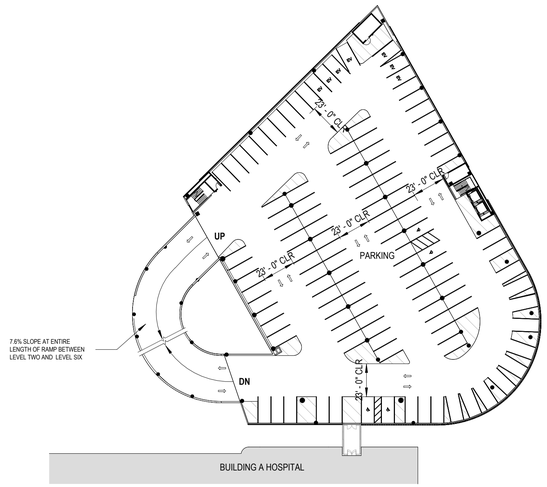
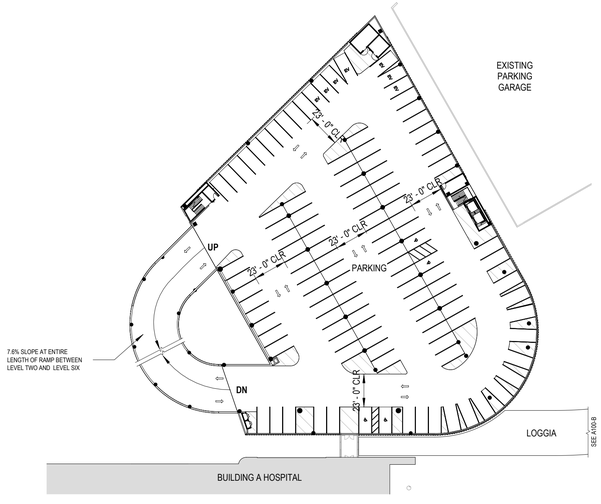
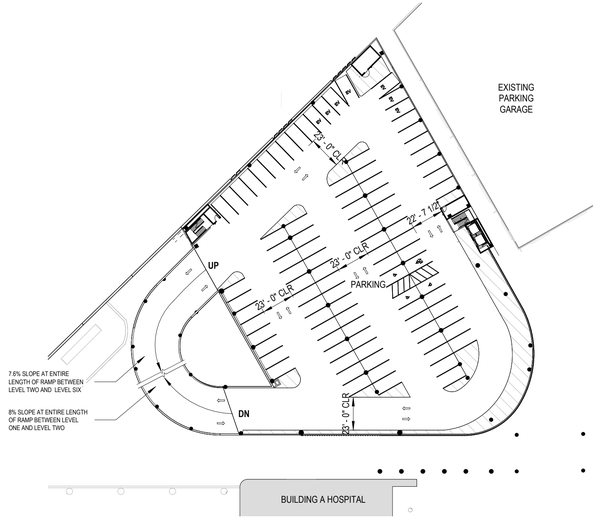
FIFTH FLOOR PLAN



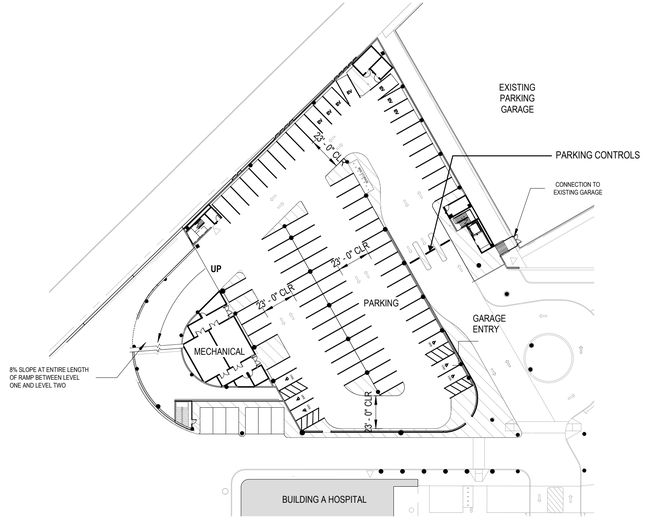
1" = 50'-0" 20 FLOOR PLAN
FOURTH FLOOR PLAN



1" = 50'-0" 12 FLOOR PLAN
THIRD FLOOR PLAN



1" = 50'-0" 11 FLOOR PLAN
SECOND FLOOR PLAN



1" = 50'-0" 10 FLOOR PLAN
FIRST FLOOR PLAN

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DRAWING ISSUE

PROJECT: 21042.00
SCALE: 1" = 50'-0"
Author
TITLE:

GARAGE PLANS

NUMBER:

A100-G

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_____ DIRECTOR _____ DATE
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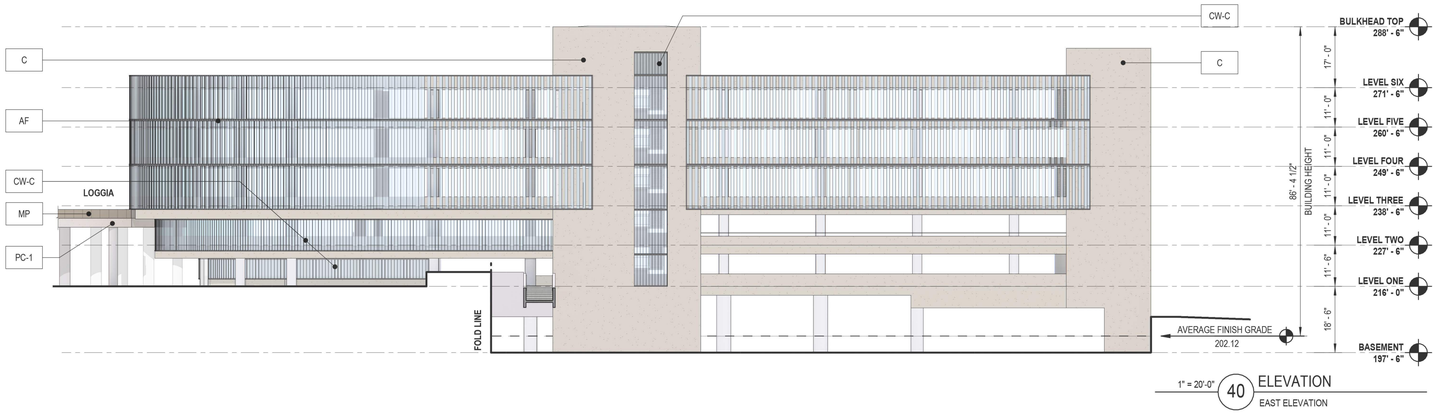
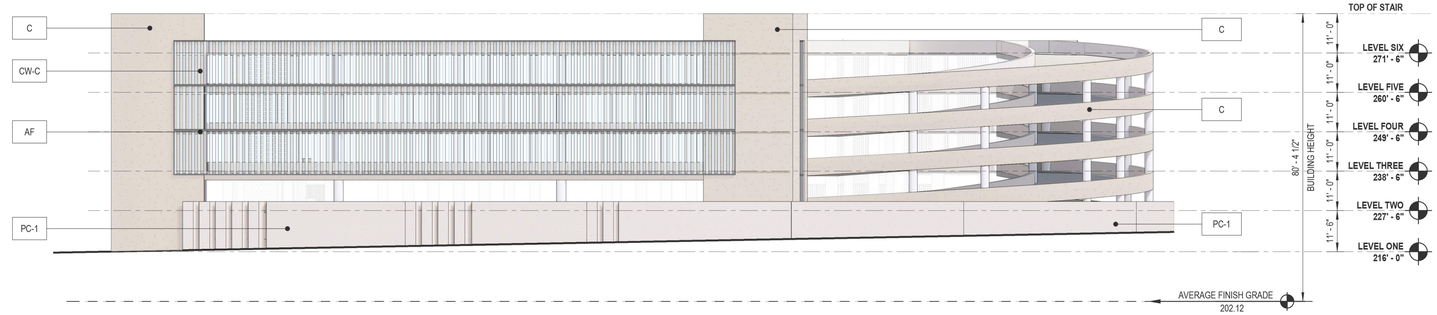
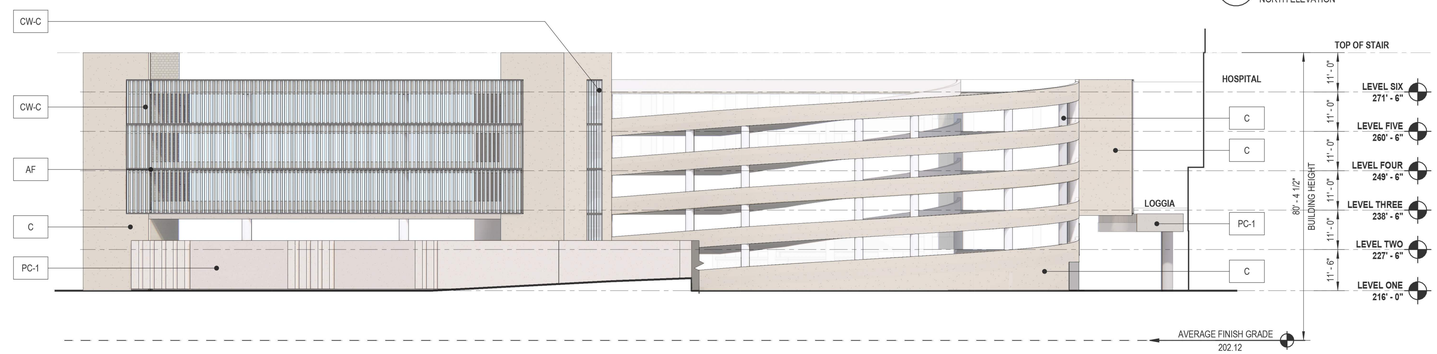


1" = 20'-0" 40 ELEVATION
EAST ELEVATION



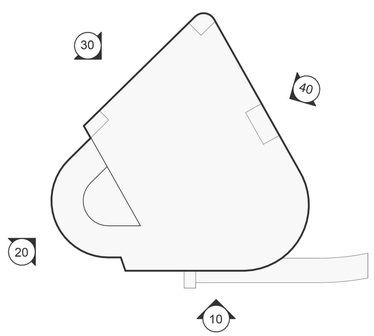
1" = 20'-0" 30 ELEVATION
NORTH ELEVATION



1" = 20'-0" 20 ELEVATION
WEST ELEVATION



1" = 20'-0" 10 ELEVATION
SOUTH ELEVATION



1" = 80'-0" KEY PLAN
LM-Garage Key Plan

EXTERIOR MATERIAL KEY

PC-1	PRE-CAST CONCRETE PANELS SMOOTH	C	CAST IN PLACE CONCRETE	CW-V	CURTAIN WALL VISION GLASS
AF	ALUMINUM FRAME	MP	METAL PANEL	CW-C	CURTAIN WALL CHANNEL GLASS

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DRAWING ISSUE

PROJECT: 21042.00
SCALE: As indicated
Author

TITLE:

GARAGE EXTERIOR ELEVATIONS

NUMBER:

A200-G

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DEPARTMENT OF PLANNING & ZONING

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CHAIRMAN, PLANNING COMMISSION DATE

DATE RECORDED _____

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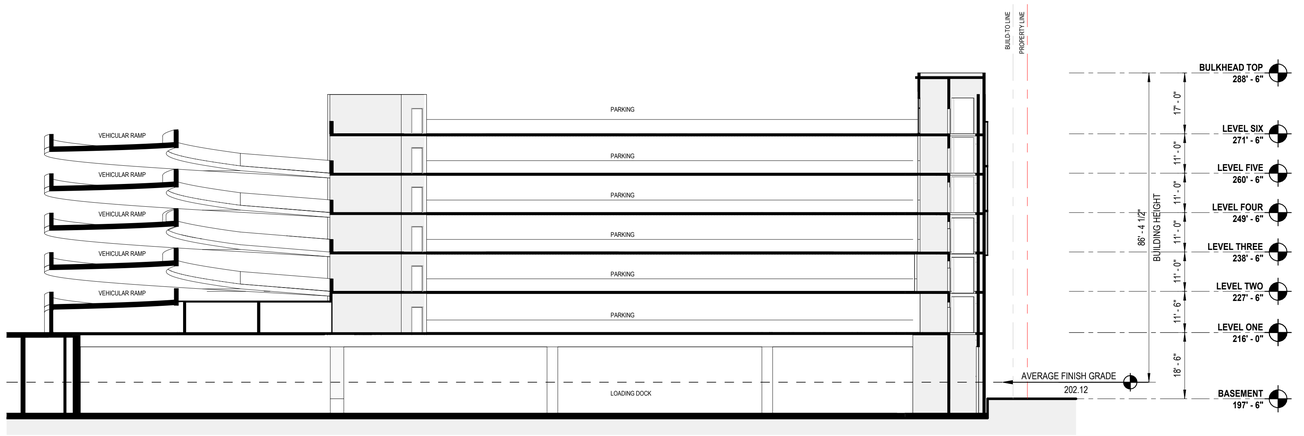
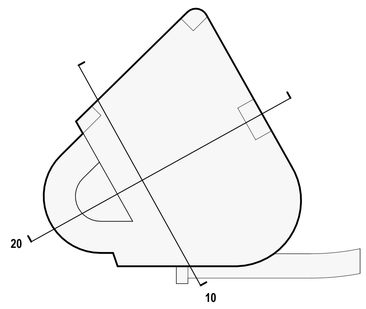


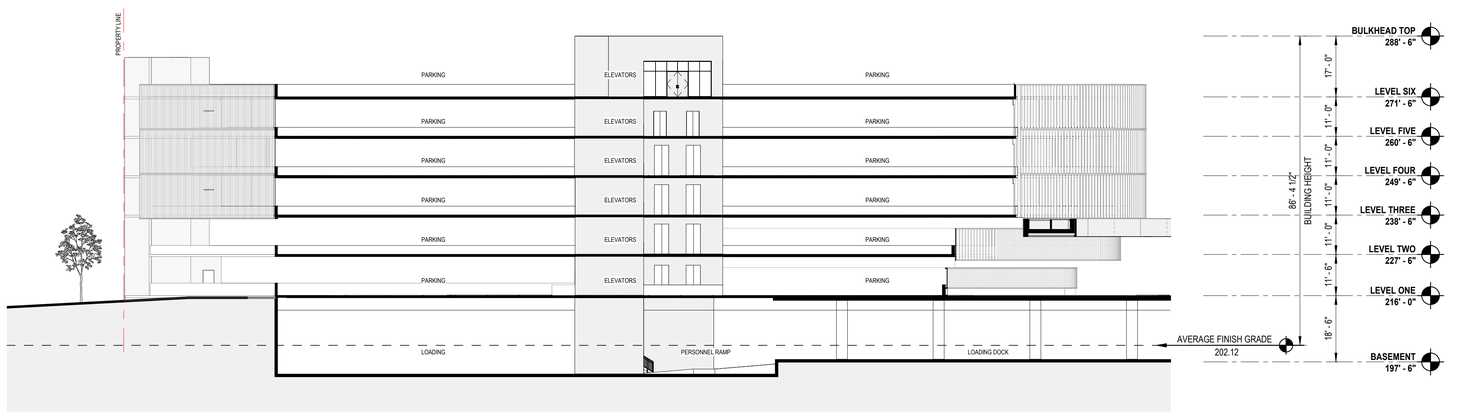
1" = 20'-0" 20 BUILDING SECTION

EAST-WEST SECTION



1" = 80'-0" KEY PLAN

LM-Garage Key Plan



1" = 20'-0" 10 BUILDING SECTION

NORTH-SOUTH SECTION-1

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DRAWING ISSUE

PROJECT: 21042.00

SCALE: As indicated

KJ

TITLE:

GARAGE
BUILDING SECTIONS

NUMBER:

A300-G



21 **GARAGE MASSING**
VIEW OF GARAGE + LOGGIA AT TERMINUS OF ROAD 3



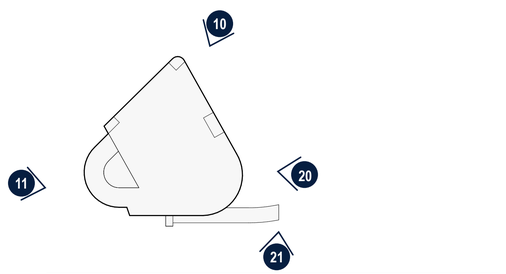
20 **GARAGE MASSING**
VIEW FROM CANCER CENTER ENTRANCE



11 **GARAGE MASSING**
VIEW FROM NORTHWEST



10 **GARAGE MASSING**
VIEW FROM NORTHEAST



KEY PLAN

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DRAWING ISSUE

PROJECT: 21042.00
SCALE:
Author
TITLE:

GARAGE MASSING IMAGES

NUMBER:

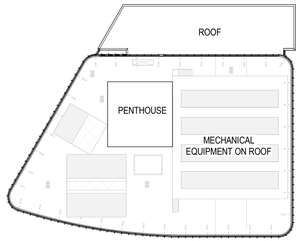
A400-G

Cancer Center Building B Calculations

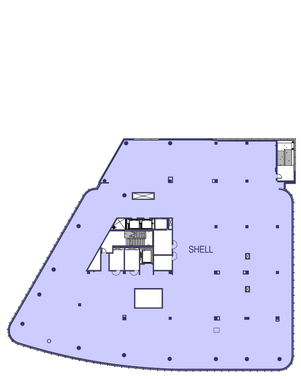
Floor #	Gross Area + OH	Vert Circ Deduct	MEP Deduct	# Lavs	sf per lav	Lavs less that 50 sf	Total Lav Deduction	Net Area
B	34,614	-1,121	-7,187	11	50	0	-550	25,756
1	26,375	-1,140	-880	10	50	0	-500	23,855
2	23,447	-1,139	-1,128	7	50	0	-350	20,830
3	26,395	-1,123	1,160	0	50	0	0	26,432
PH	NA	NA	NA	0	50	0	0	0
	Total Gross Floor Area							Total Net Floor Area
	110,831							96,873

Area Legend

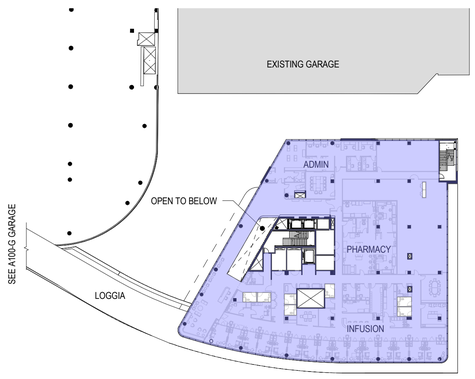
	Gross Area
	Vert Circ + MEP Deductions
	Lavatories



1" = 50'-0" 20 FLOOR PLAN
ROOF PLAN - OPEN MECHANICAL



1" = 50'-0" 13 FLOOR PLAN
THIRD FLOOR PLAN



1" = 50'-0" 12 FLOOR PLAN
SECOND FLOOR PLAN



1" = 50'-0" 11 FLOOR PLAN
FIRST FLOOR PLAN



1" = 50'-0" 10 FLOOR PLAN
BASEMENT FLOOR PLAN

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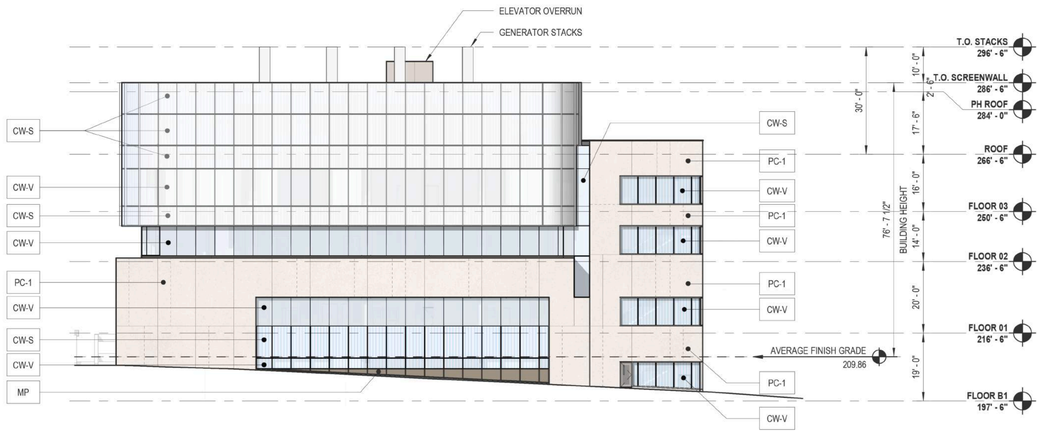
DRAWING ISSUE

PROJECT: 21042.02
SCALE: 1" = 50'-0"
Author
TITLE:

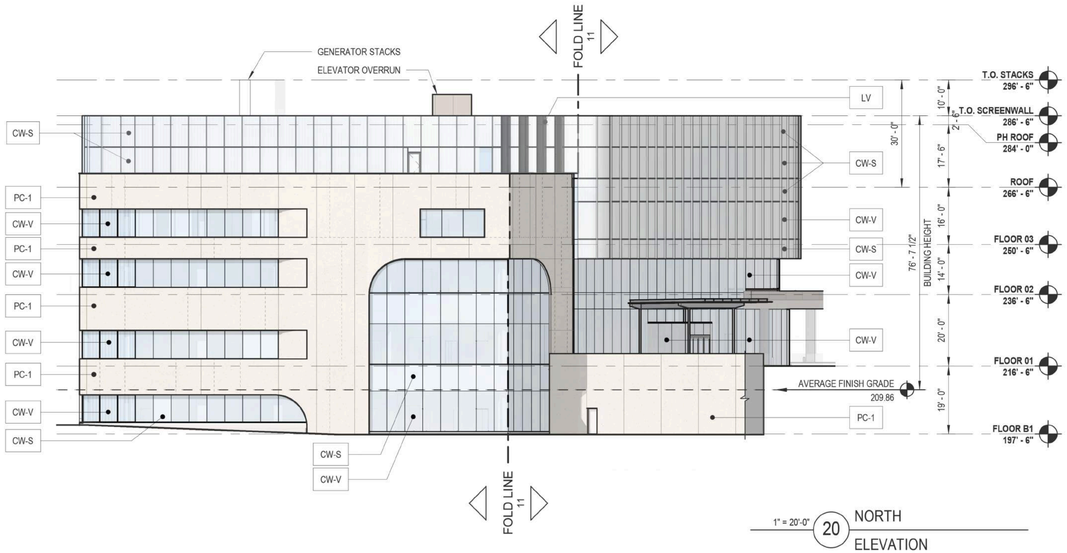
BUILDING B CANCER CENTER PLANS

NUMBER:

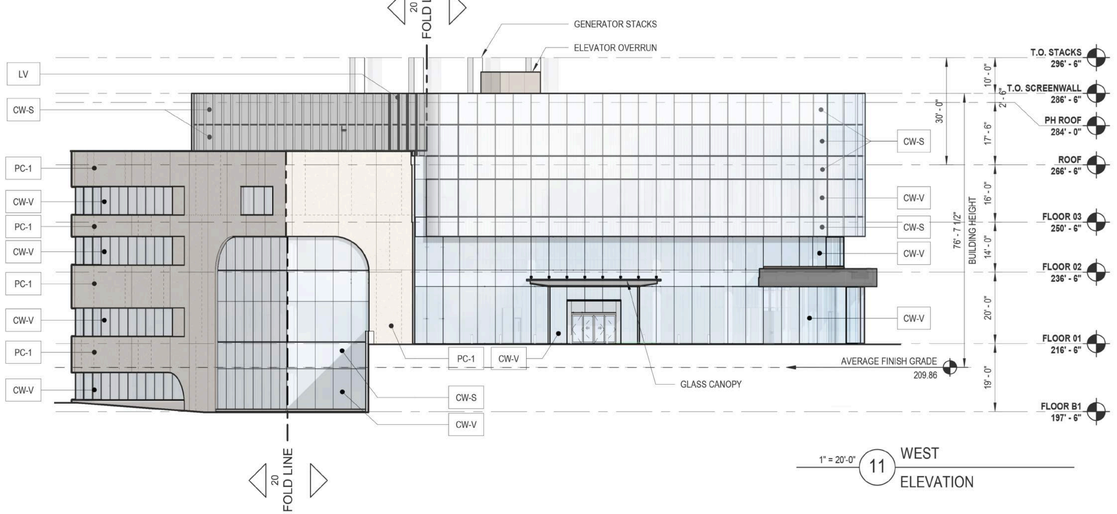
A100-B



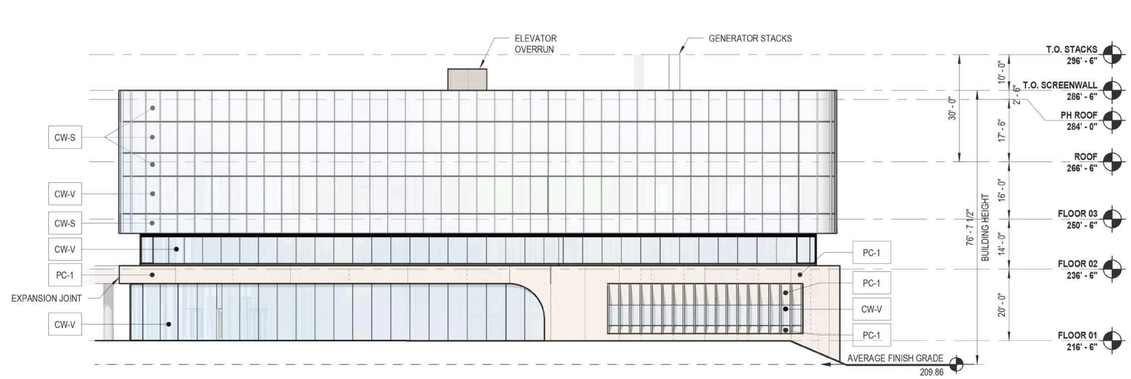
1" = 20'-0" 21 EAST ELEVATION



1" = 20'-0" 20 NORTH ELEVATION



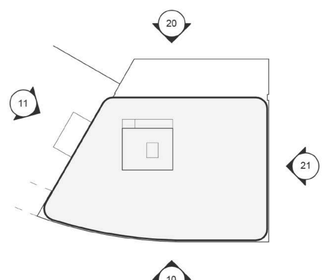
1" = 20'-0" 11 WEST ELEVATION



1" = 20'-0" 10 SOUTH ELEVATION

EXTERIOR MATERIAL KEY

PC-1	PRE-CAST CONCRETE PANELS SMOOTH	SV	STONE VENEER	CW-V	CURTAIN WALL VISION GLASS	SH-1	SHADING DEVICE CONCRETE	GR	GUARDRAIL
PC-2	PRE-CAST CONCRETE PANELS TEXTURED	MP	METAL PANEL	CW-S	CURTAIN WALL WITH SHADOW BOX SPANDREL GLASS	SH-2	SHADING DEVICE METAL	LV	LOUVERS



1/64" = 1'-0" CANCER CENTER ELEVATIONS KEY PLAN

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DRAWING ISSUE

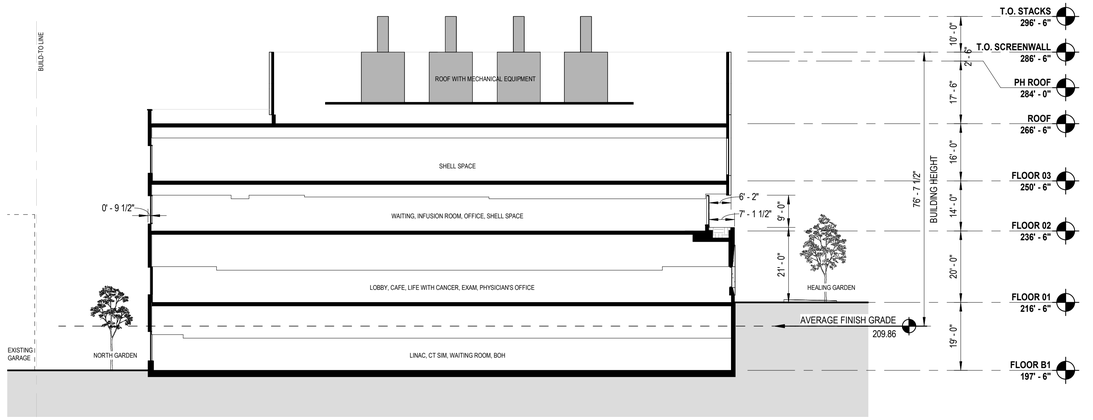
PROJECT: 21042.02
SCALE: As indicated
Author

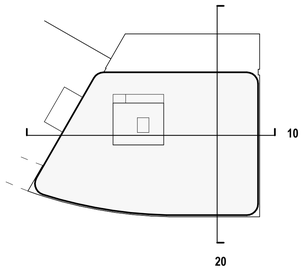
TITLE:

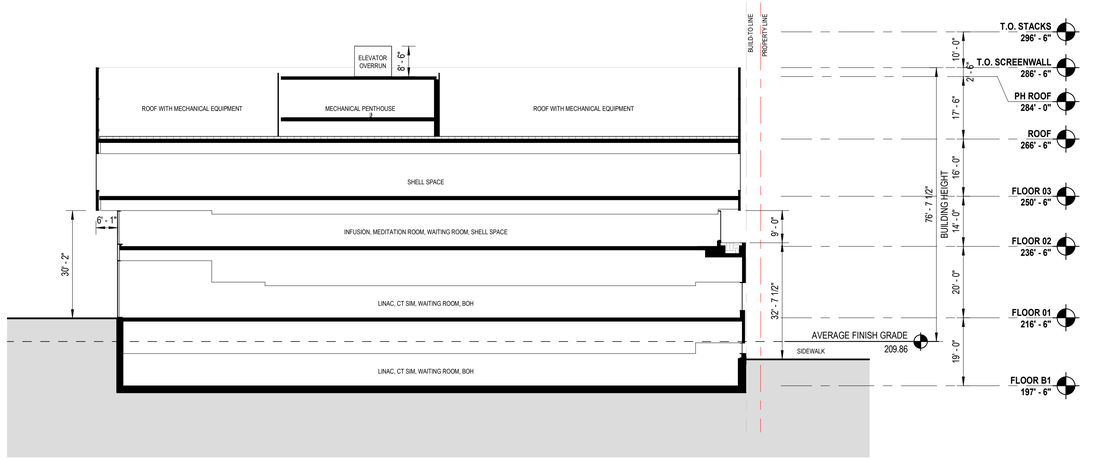
BUILDING B CANCER CENTER ELEVATIONS

NUMBER:

A200-B







CANCER CENTER
ELEVATIONS

1/64" = 1'-0"

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DRAWING ISSUE

PROJECT: 21042.02

SCALE: As indicated

Author

TITLE:

BUILDING B
CANCER CENTER
SECTIONS

NUMBER:

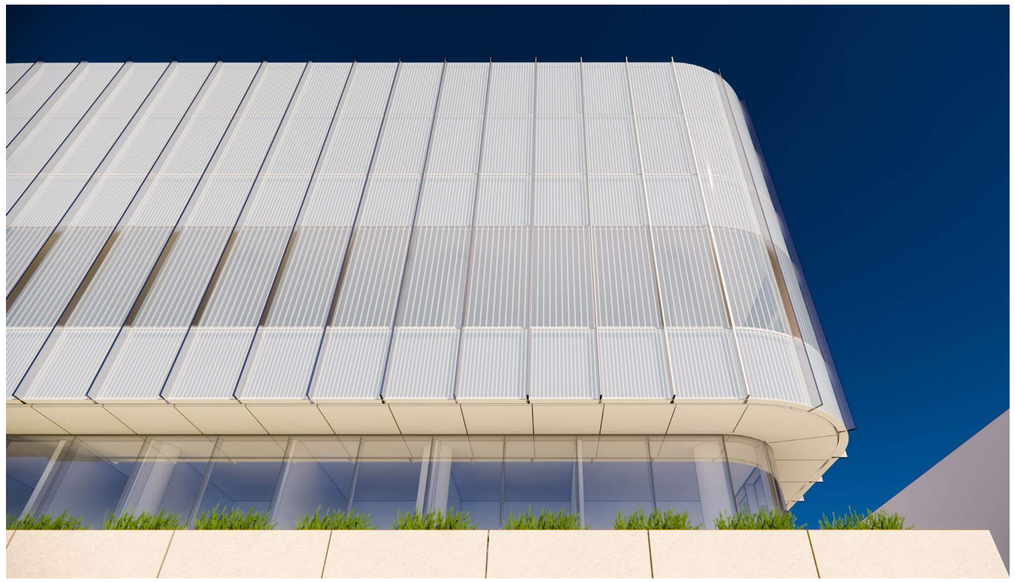
A300-B



21 **CANCER CENTER MASSING**
VIEW FROM SOUTHWEST, INTERSECTION OF ROADS 1 &3



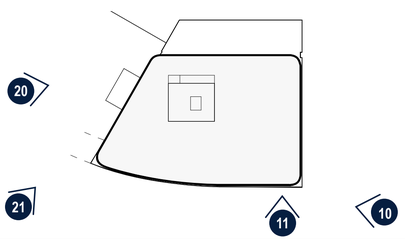
20 **CANCER CENTER MASSING**
VIEW FROM CANCER CENTER ENTRANCE



11 **CANCER CENTER MASSING**
ENLARGED VIEW OF UPPER VOLUME FROM SOUTH



10 **CANCER CENTER MASSING**
VIEW FROM SOUTHEAST



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DRAWING ISSUE

PROJECT: 21042.00

SCALE:

Author

TITLE:

BUILDING B
CANCER CENTER
MASSING IMAGES

NUMBER:

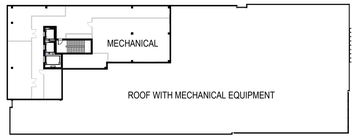
A400-B

SCC Building C Calculations

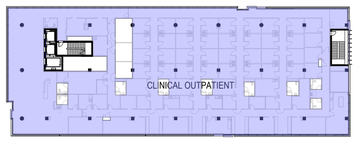
Floor #	Gross Area	Vert Circ Deduct	MEP Deduct	# Lavs	sf per lav	Lavs less that 50 sf	Total Lav Deduction	Net Area
B	NA	NA	NA	0	50	0	0	NA
1	19,272	-919	-71	13	50	0	-650	17,632
2	20,865	-899	-1,112	10	50	0	-500	18,354
3	21,298	-899	-1,112	10	50	0	-500	18,787
4	21,298	-899	-1,112	10	50	0	-500	18,787
PH	NA	NA	NA	0	50	0	0	0
	Total Gross Area							Total Net Area
	82,733							73,560

Area Legend

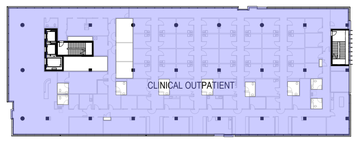
	Gross Area
	Vert Circ + MEP Deductions
	Lavatories



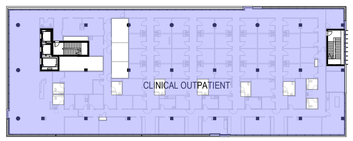
1" = 50'-0" 20 PENTHOUSE & ROOF FLOOR PLAN



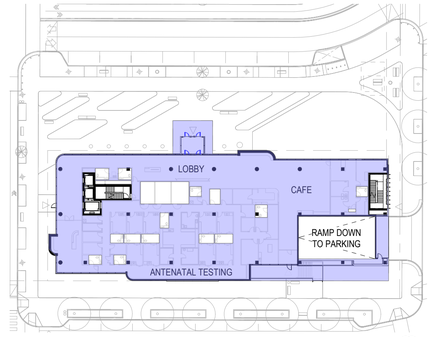
1" = 50'-0" 13 FOURTH FLOOR FLOOR PLAN



1" = 50'-0" 12 THIRD FLOOR FLOOR PLAN



1" = 50'-0" 11 SECOND FLOOR FLOOR PLAN



1" = 50'-0" 10 FIRST FLOOR FLOOR PLAN

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SITE PLAN NO. _____
_____ DIRECTOR _____ DATE
_____ CHAIRMAN, PLANNING COMMISSION _____ DATE
DATE RECORDED _____
_____ INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO.

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DRAWING ISSUE

PROJECT: 21042.01

SCALE: 1" = 50'-0"

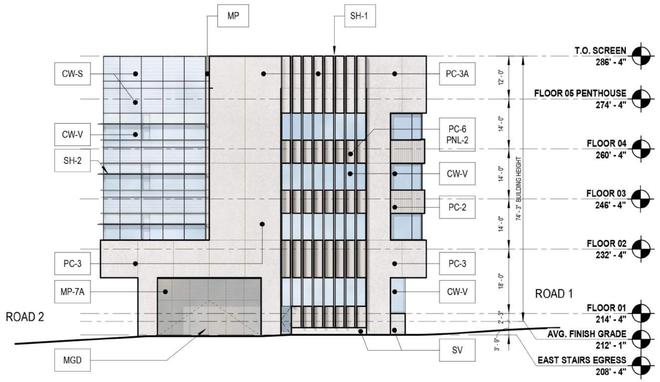
Author

TITLE:

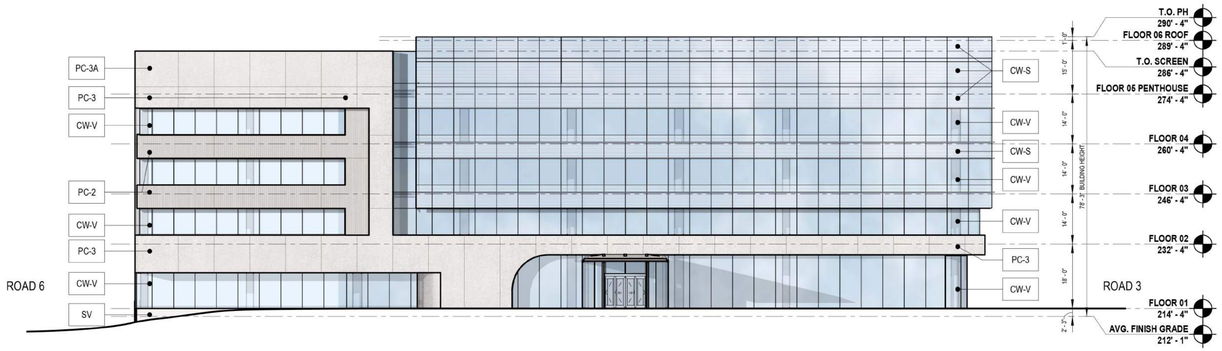
BUILDING C, SPECIALTY CARE CENTER (SCC) PLANS

NUMBER:

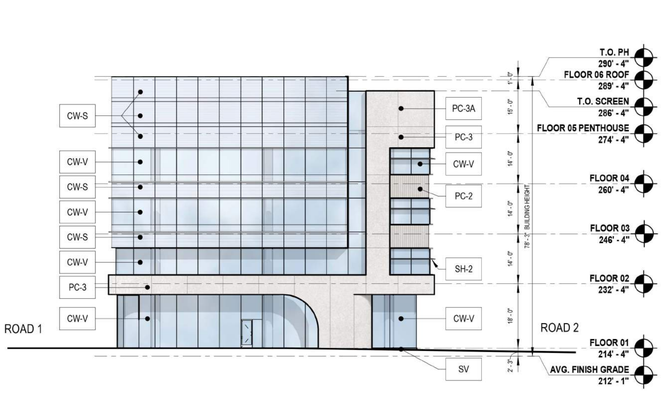
A100 - C



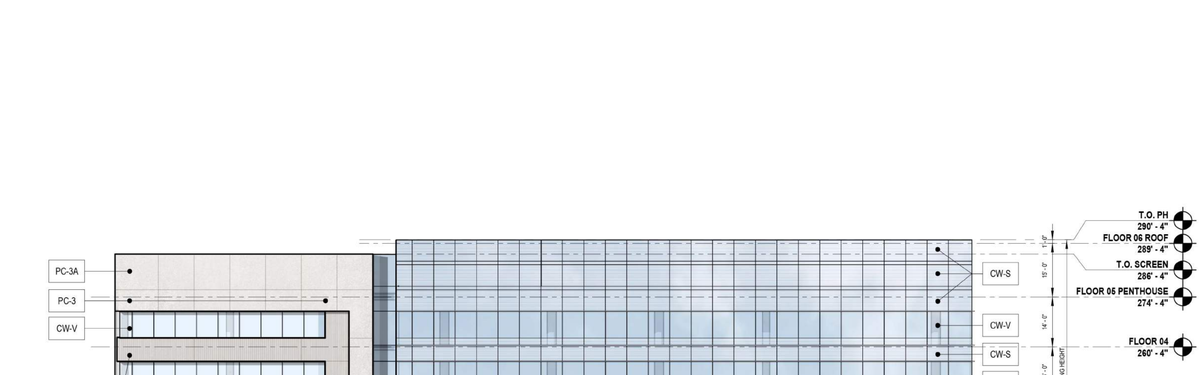
1" = 20'-0" 21 EAST ELEVATION



1" = 20'-0" 20 NORTH ELEVATION



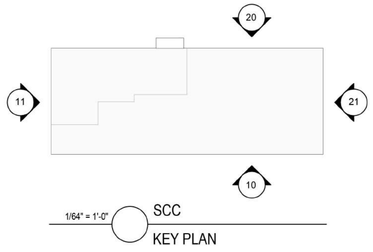
1" = 20'-0" 11 WEST ELEVATION



1" = 20'-0" 10 SOUTH ELEVATION

EXTERIOR MATERIAL KEY

	PC-1	PRE-CAST CONCRETE PANELS SMOOTH		MP	METAL PANEL		CW-V	CURTAIN WALL VISION GLASS		SH-1	SHADING DEVICE CONCRETE		GR	GLASS GUARDRAIL
	PC-2	PRE-CAST CONCRETE PANELS TEXTURED		MP-7A MGD	PERFORATED METAL GARAGE DOOR PANEL		CW-S	CURTAIN WALL WITH SHADOW BOX SPANDREL GLASS		SH-2	SHADING DEVICE METAL		LV	LOUVER
	SV	STONE VENEER												



1/64" = 1'-0" KEY PLAN

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_____ DIRECTOR _____ DATE
DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO. _____
_____ DIRECTOR _____ DATE
_____ CHAIRMAN, PLANNING COMMISSION _____ DATE
DATE RECORDED _____
INSTRUMENT NO. _____ DEED BOOK NO. _____ PAGE NO. _____

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DRAWING ISSUE

PROJECT: 21042.00

SCALE: As indicated

Author

TITLE:

BUILDING C, SPECIALTY CARE CENTER (SCC) ELEVATIONS

NUMBER:

A200 - C

APPROVED

SPECIAL USE PERMIT NO. _____

DEPARTMENT OF PLANNING & ZONING

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SITE PLAN NO. _____

_____ DIRECTOR _____ DATE

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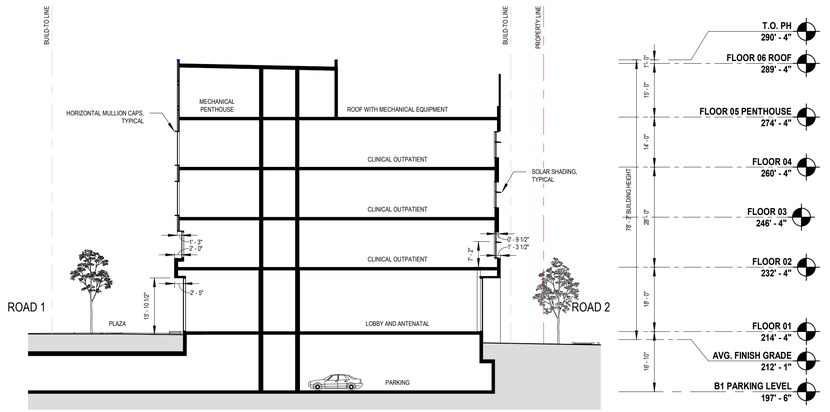
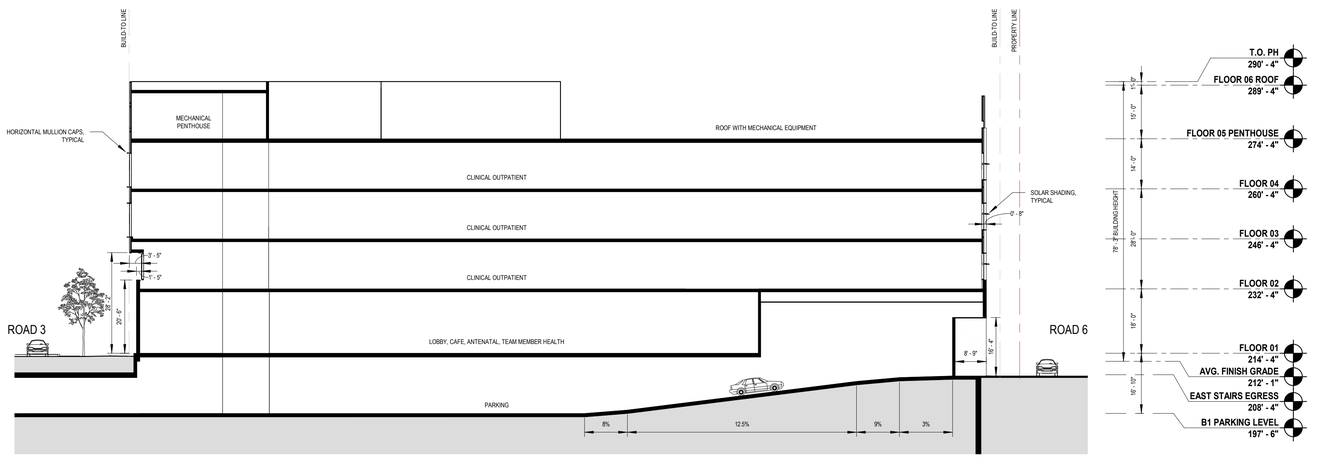
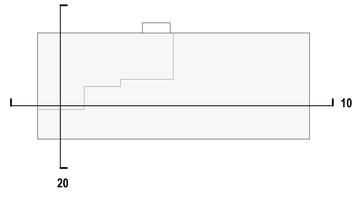


1" = 20'-0" 20 NORTH–SOUTH BUILDING SECTION



1" = 20'-0" 10 EAST–WEST BUILDING SECTION



1/64" = 1'-0" SCC KEY PLAN

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Lic. No. 0401016509
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DRAWING ISSUE

PROJECT: 21042.00

SCALE: As indicated

Author

TITLE:

BUILDING C, SPECIALTY CARE CENTER (SCC) BUILDING SECTIONS

NUMBER:

A300 - C



21 **SPECIALTY CARE CENTER MASSING**
VIEW FROM SOUTHEAST



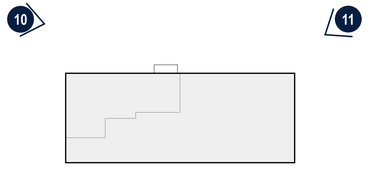
20 **SPECIALTY CARE CENTER MASSING**
VIEW FROM SOUTHWEST



11 **SPECIALTY CARE CENTER MASSING**
VIEW FROM NORTHEAST



10 **SPECIALTY CARE CENTER MASSING**
VIEW FROM NORTHWEST



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NOTE: RENDERINGS ARE FOR ILLUSTRATIVE PURPOSES

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DRAWING ISSUE

PROJECT: 21042.00

SCALE:
Author

TITLE:
BUILDING C
SPECIALTY CARE
CENTER
MASSING IMAGES

NUMBER:
A400-C