THIS DRAWING SET HAS NOT BEEN RELEASED FOR CONSTRUCTION

64 VAUGHAN MALL BUILDING RESTORATION

64 Vaughan Mall, Portsmouth, New Hampshire

Assessor's Parcel 126, Lot 1

Issued for: TAC

Plan Issue Date:

June 21, 2021

Owner:
64 Vaughan Mall, LLC

41 Industrial Drive
Exeter, NH 03833

Applicant:
Hampshire
Development Corp.
41 Industrial Drive
Exeter, NH 03833
(603) 778-9999

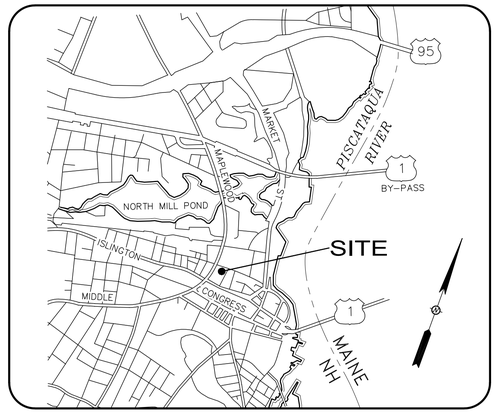
Civil Engineer:

ALTUS ENGINEERING, INC.
133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

Architect:
JSA Design

273 Corporate Drive, Suite 100
Portsmouth, NH 03801
(603) 436-2551

Surveyor:
James Verra
& Associates Inc.
LAND SURVEYORS
101 SHATTUCK WAY, SUITE 8
Newington, New Hampshire
03801-7876
Tel 603-436-3557



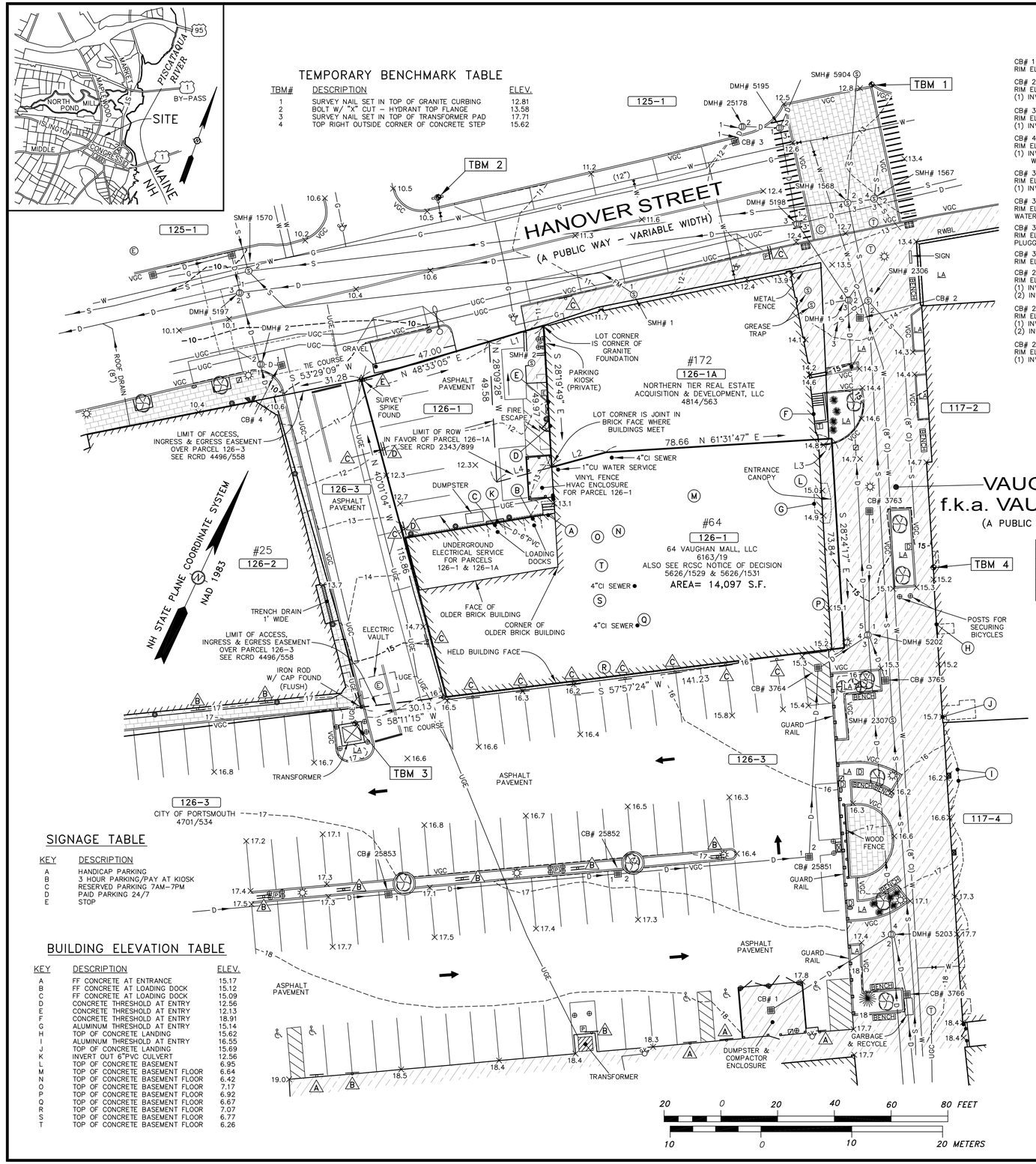
LOCUS MAP
Not to Scale

Sheet Index Title	*Sheet No.:*	*Rev.*	*Date*
Existing Conditions Plan	1 of 1	1	04/19/20
Lot Line Adjustment Plan	C-1	0	06/21/21
Demolition Plan	C-2	7	06/21/21
Site Plan	C-3	9	06/21/21
Grading and Drainage Plan	C-4	7	06/21/21
Utilities Plan	C-5	7	06/21/21
Detail Sheet	D-1	3	06/21/21
Detail Sheet	D-2	4	06/21/21
Detail Sheet	D-3	2	03/22/21
Detail Sheet	D-4	2	03/22/21
Exterior Elevations	A3		06/16/21
Exterior Elevations	A4		06/16/21
Perspective Views	A5		06/16/21

P5042

TEMPORARY BENCHMARK TABLE

TBM#	DESCRIPTION	ELEV.
1	SURVEY NAIL SET IN TOP OF GRANITE CURBING	12.81
2	BOLT W/ "X" CUT – HYDRANT TOP FLANGE	13.58
3	SURVEY NAIL SET IN TOP OF TRANSFORMER PAD	17.71
4	TOP RIGHT OUTSIDE CORNER OF CONCRETE STEP	15.62



SIGNAGE TABLE

KEY	DESCRIPTION
A	HANDICAP PARKING
B	3 HOUR PARKING/PAY AT KIOSK
C	RESERVED PARKING 7AM–7PM
D	PAID PARKING 24/7
E	STOP

BUILDING ELEVATION TABLE

KEY	DESCRIPTION	ELEV.
A	FF CONCRETE AT ENTRANCE	15.17
B	FF CONCRETE AT LOADING DOCK	15.12
C	FF CONCRETE AT LOADING DOCK	15.09
D	CONCRETE THRESHOLD AT ENTRY	12.56
E	CONCRETE THRESHOLD AT ENTRY	12.13
F	CONCRETE THRESHOLD AT ENTRY	18.91
G	ALUMINUM THRESHOLD AT ENTRY	15.14
H	TOP OF CONCRETE LANDING	15.62
I	ALUMINUM THRESHOLD AT ENTRY	16.55
J	TOP OF CONCRETE LANDING	15.69
K	INVERT OUT 6"PVC CULVERT	12.56
L	TOP OF CONCRETE BASEMENT	6.95
M	TOP OF CONCRETE BASEMENT FLOOR	6.64
N	TOP OF CONCRETE BASEMENT FLOOR	6.42
O	TOP OF CONCRETE BASEMENT FLOOR	7.17
P	TOP OF CONCRETE BASEMENT FLOOR	6.92
Q	TOP OF CONCRETE BASEMENT FLOOR	6.67
R	TOP OF CONCRETE BASEMENT FLOOR	7.07
S	TOP OF CONCRETE BASEMENT FLOOR	6.77
T	TOP OF CONCRETE BASEMENT FLOOR	6.26

LINE TABLE

LINE	BEARING	DISTANCE
L1	N 48°33'05" E	20.00
L2	N 49°44'19" E	19.83
L3	N 61°31'47" E	1.00
L4	S 49°44'19" W	20.06

DRAIN TABLE

CB# 1
RIM EL= 17.62

CB# 2
RIM EL= 13.77
(1) INV OUT 12"RCP= 10.12

CB# 3
RIM EL= 11.98
(1) INV OUT 12"HDPE= 7.74

CB# 4
RIM EL= 9.57
(1) INV OUT 12"PVC= 7.32±
W/ TRAP ON OUTLET

CB# 3763
RIM EL= 14.71
(1) INV OUT 12"RCP= 12.03

CB# 3764
RIM EL= 15.05
WATER LEVEL= 11.10

CB# 3765
RIM EL= 15.35
PLUGGED 13.5±

CB# 3766
RIM EL= 17.59

CB# 25851
RIM EL= 16.26
(1) INV IN 12"HDPE= 12.08
(2) INV OUT 12"HDPE= 12.01

CB# 25852
RIM EL= 16.81
(1) INV IN 10"HDPE= 12.29
(2) INV OUT 12"HDPE= 12.26

CB# 25853
RIM EL= 17.12
(1) INV OUT 10"HDPE= 12.78

DMH# 1
RIM EL= 13.75
(1) 12"RCP (PLUGGED)
(2) INV IN 12"RCP= 9.76
(3) INV IN 18"RCP= 8.75
(4) 12"RCP (PLUGGED)
(5) INV OUT ___RCP= 8.77

DMH# 2
RIM EL= 9.68
(1) INV IN 6"PVC= 7.10
(2) INV OUT 12"RCP= 6.99

DMH# 5195
RIM EL= 12.56
(1) INV IN 12"HDPE= 6.81
(2) INV IN 12"HDPE= 6.11
(3) INV OUT (2) 12"PVC= 5.92

DMH# 5197
RIM EL= 10.14
(1) INV IN 12"RCP= 6.79
(2) INV IN 12"RCP= 6.83
(3) CL FLOW 36"RCP= 5.26

DMH# 5198
RIM EL= 12.50
(1) INV IN (2) 12"PVC= 5.95
(2) INV IN 18"RCP= 7.60
(3) CL FLOW ___RCP= 5.85

DMH# 5202
RIM EL= 15.14
(1) INV IN 12"RCP= 11.47
(2) INV IN 12"RCP= 11.51
(3) INV IN 18"RCP= 9.96
(4) INV IN 12"RCP= 11.60
(5) INV OUT 18"RCP= 9.91

DMH# 5203
RIM EL= 17.38
(1) INV IN 12"DI= 13.82
(2) INV IN 15"CI= 11.30
(3) INV IN 12"CI= 11.83
(4) INV OUT 15"CI= 11.32

DMH# 25178
RIM EL= 12.66
(1) INV IN 12"HDPE= 7.48
(2) 12"HDPE W/ TRAP

SEWER TABLE

SMH# 1
RIM EL= 11.80
(1) INV OUT 4"PVC FM= 7.47

SMH# 2
RIM EL= 11.53
(COULD NOT OPEN)

SMH# 1567
RIM EL= 12.96
(1) PLUGGED
(2) INV IN 12"RCP= 5.19
(3) INACTIVE
(4) INV OUT 12"___=4.71

SMH# 1568
RIM EL= 12.86
(1) INV IN 8"PVC= 4.88
(2) INV IN 12"___= 4.68
(3) INV IN 24"RCP= 5.05
(4) INV OUT 12"RCP= 4.70

SMH# 1570
RIM EL= 10.16
(2) INV IN 15"RCP= 3.74

SMH# 2306
RIM EL= 13.84
(1) INV IN 10"VCP= 6.86
(2) INV IN 24"RCP= 8.88
(3) INV IN 6"PVC= 11.24
(4) INV OUT 24"RCP= 6.83
(23" CSU PER DPW)

SMH# 2307
RIM EL= 15.50
CL FLOW= 10.66
(OVAL RCP 15"W X 18"H)
(23" CSU PER DPW)

LEGEND:

- 110–5 ..... TAX SHEET – LOT NUMBER
- RCRD ..... ROCKINGHAM COUNTY REGISTRY OF DEEDS
- RCSC ..... ROCKINGHAM COUNTY SUPERIOR COURT
- VGC ..... VERTICAL FACED GRANITE CURB
- RWBL ..... MODULAR BLOCK RETAINING WALL
- ..... PARK METER KIOSK
- ..... BOLLARD
- ..... SIGN
- ..... HANDICAP SPACE
- ..... LIGHT POLE
- ..... UTILITY POLE WITH ARM & LIGHT
- ..... ELECTRICAL MANHOLE
- ..... ELECTRICAL CONDUIT
- ..... ELECTRIC METER
- ..... GAS SHUT OFF
- ..... GAS VALVE
- ..... WATER GATE VALVE
- ..... WATER SHUT OFF VALVE
- ..... HYDRANT
- ..... FIRE CONNECTION
- ..... CATCH BASIN
- ..... DRAIN MANHOLE
- ..... ROOF DOWNSPOUT
- ..... SEWER MANHOLE
- ..... DECIDUOUS TREE
- ..... CONIFEROUS SHRUB
- ..... DECIDUOUS SHRUB
- — W — ..... WATER LINE
- — S — ..... SEWER LINE
- — D — ..... DRAIN LINE
- — G — ..... GAS LINE
- —UGE— ..... UNDERGROUND ELECTRIC
- —UGC— ..... UNDERGROUND COMMUNICATIONS
- ..... CEMENT CONCRETE
- ..... BRICK PAVERS
- ..... RETAINING WALL
- LA ..... LANDSCAPED AREA
- ×12.5 ..... SPOT GRADE
- A ..... SEE SIGNAGE TABLE
- A ..... SEE BUILDING ELEVATION TABLE
- ..... EXISTING TRAFFIC FLOW SYMBOL

ABUTTERS LIST

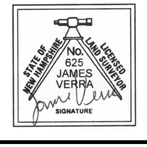
MAP–LOT	OWNER OF RECORD	DEED REF.
117–2	JAMER REALTY, INC. 80 HANOVER ST, PORTSMOUTH, NH 03801	3093/1283
117–4	SJW LTD C/O GENE FISK & ASSOCIATES, LLC 4 GRENLEAF WOODS DR, SUITE 102 PORTSMOUTH, NH 03801	2574/495
125–1	HANOVER APARTMENTS, LLC (195 HANOVER ST #1) C/O CATHARTES PRIVATE INVESTMENTS 100 SUMMER STREET, SUITE 1600, BOSTON, MA 02110	N/A
125–1	PORTWALK HI, LLC (195 HANOVER ST #2) C/O CATHARTES PRIVATE INVESTMENTS 100 SUMMER STREET, SUITE 1600, BOSTON, MA 02110	N/A
126–1A	NORTHERN TIER REAL ESTATE ACQUISITION & DEVELOPMENT, LLC C/O JOHN J. DUSSI 4 MOODY LN, WEST NEWBURY, MA 01985	4814/563
126–3	CITY OF PORTSMOUTH 1 JUNKINS AVE, PORTSMOUTH, NH 03801	4701/534

NOTES:

1. OWNER OF RECORD.....64 VAUGHAN MALL, LLC
   ADDRESS.....41 INDUSTRIAL DRIVE, UNIT 20, EXETER, NH 03833
   DEED REFERENCE.....6163/19
   TAX SHEET / LOT.....126–1
2. THIS PLAN IS BASED ON A FIELD SURVEY BY JAMES VERRA AND ASSOCIATES, INC. 3/2014, 4/2017 & 12/2019. ON SITE CONTROL ESTABLISHED USING SURVEY GRADE GPS UNITS.
   HORIZONTAL DATUM: NAD 1983 (1986 ADJUSTMENT)
   PRIMARY BM: NHDOT 379–0150 (PORTSMOUTH TRAFFIC CIRCLE)
   VERTICAL DATUM: NAVD 1988
   PRIMARY BM: CITY CONTROL POINT "ALBA"
3. CONTRACTOR TO VERIFY SITE BENCHMARKS BY LEVELING BETWEEN 2 BENCHMARKS PRIOR TO THE SETTING OR ESTABLISHMENT OF ANY GRADES/ELEVATIONS. DISCREPANCIES ARE TO BE REPORTED TO JAMES VERRA AND ASSOC., INC.
4. THE LOCATION OF ALL UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE AND ARE BASED UPON THE FIELD LOCATION OF ALL VISIBLE STRUCTURES (IE CATCH BASINS, MANHOLES, WATER GATES ETC.) AND INFORMATION COMPILED FROM PLANS PROVIDED BY UTILITY COMPANIES AND GOVERNMENTAL AGENCIES. ALL CONTRACTORS SHOULD NOTIFY, IN WRITING, SAID AGENCIES PRIOR TO ANY EXCAVATION WORK AND CALL DIG–SAFE @ 1–888–DIG–SAFE.
5. SEE ROCKINGHAM COUNTY SUPERIOR COURT NOTICE OF DECISION DATED 3/18/2015, RCRD BOOK 5626, PAGE 1529. ALSO SEE STIPULATION DATED 1/30/2015, RCRD BOOK 5626, PAGE 1531.
6. THE SUBJECT TRACT LIES IN ZONE X (UNSHADED), AS SHOWN ON FLOOD INSURANCE RATE MAP 33015C0259F, EFFECTIVE DATE JANUARY 29, 2021, BY FEMA.

REFERENCE PLANS:

1. PLAT OF LAND, 64 VAUGHAN MALL, PORTSMOUTH, N.H., FOR BENDETSON–PORTSMOUTH REALTY TRUST, REVISED TO 9/17/2018, RCRD PLAN D–41080.
2. CONDOMINIUM SITE PLAN, THE PROVIDENT CONDOMINIUM, 25 MAPLEWOOD AVENUE, PORTSMOUTH, N.H., FOR 25 MAPLEWOOD AVENUE, LLC., DATED 12/20/2019, RCRD PLAN D–41922.
3. EXISTING CONDITIONS PLAN, PROPOSED SITE DEVELOPMENT PLANS, 25 MAPLEWOOD AVENUE, PORTSMOUTH, N.H., BY JAMES VERRA AND ASSOCIATES, INC., DATED 4/18/2017, NOT RECORDED.



P5042

SURVEYOR:
James Verra and Associates, Inc.
LAND SURVEYORS
101 SHATTUCK WAY – SUITE 8
NEWINGTON, N.H. 03801– 7876
603–436–3557
JOB NO: 23524–A
PLAN NO: 23524–A

ENGINEER:
ALTUS ENGINEERING, INC.
133 COURT STREET PORTSMOUTH, NH 03801
(603) 433–2335 www.ALTUS–ENG.com

ISSUED FOR:
APPROVAL

ISSUE DATE:
APRIL 19, 2021

REVISIONS

NO.	DESCRIPTION	BY	DATE
1	APPROVAL	JV	4/19/21

DRAWN BY: JCS
APPROVED BY: JV
DRAWING FILE: 23524–A.DWG

SCALE:
22" x 34" – 1" = 20'
11" x 17" – 1" = 40'

OWNER:
64 VAUGHAN MALL, LLC
41 INDUSTRIAL DRIVE
UNIT 20
EXETER, NH 03833

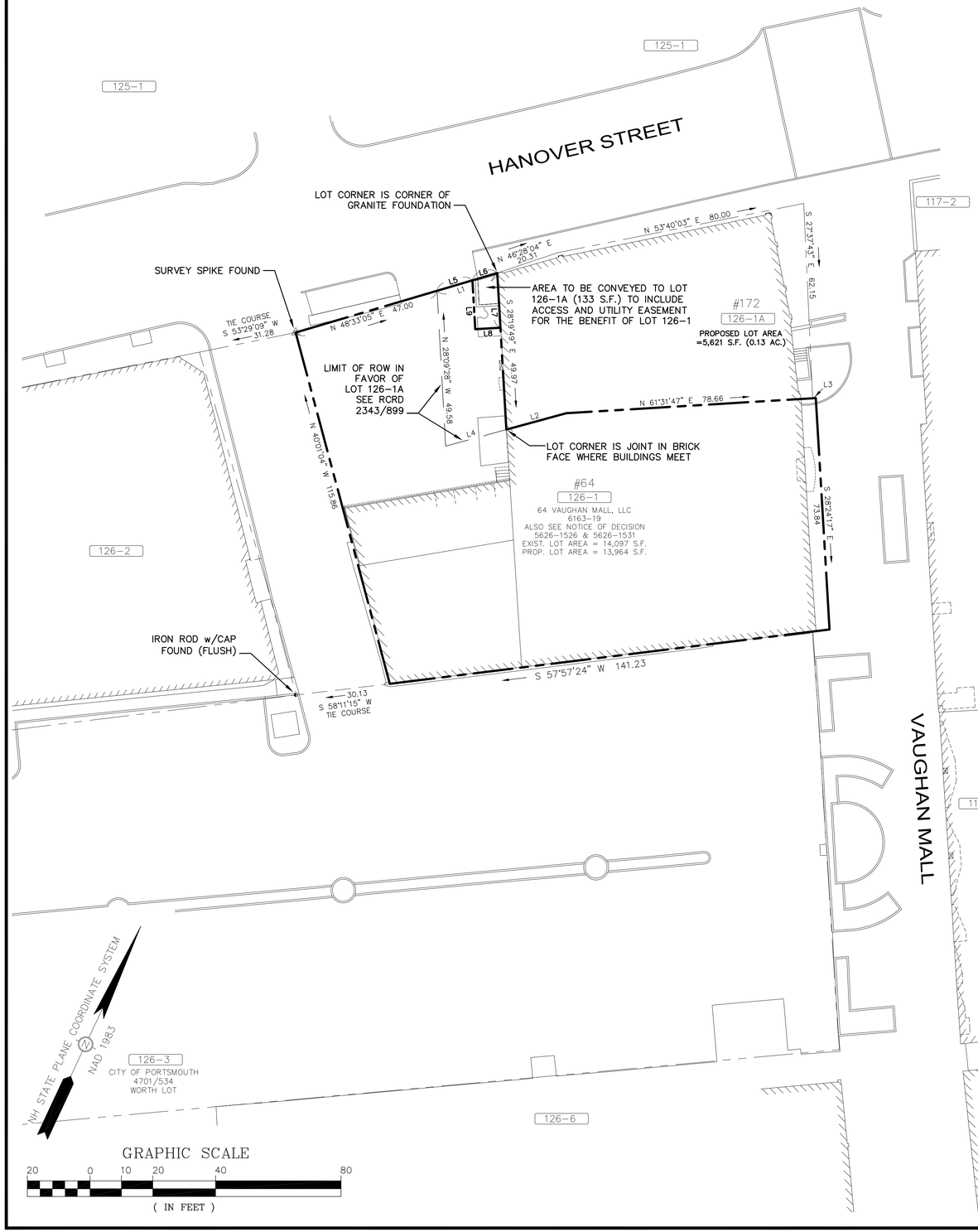
ASSESSOR'S PARCEL
126–1

PROJECT:
PROPOSED SITE DEVELOPMENT PLANS
64 VAUGHAN MALL
PORTSMOUTH, N.H.

ASSESSOR'S PARCEL
126–1

TITLE:
EXISTING CONDITIONS PLAN

SHEET NUMBER:
1 OF 1



LINE TABLE		
LINE	BEARING	DISTANCE
L1	N 48°33'05" E	20.00
L2	N 49°44'19" E	19.83
L3	N 61°31'47" E	1.00
L4	S 49°44'19" W	20.06
L5	N 48°33'05" E	11.75
L6	N 49°44'19" E	8.25
L7	S 28°19'49" E	17.46
L8	S 61°40'10" W	8.03
L9	N 28°19'49" W	15.59

NOTES

1. OWNER OF RECORD: 64 VAUGHAN MALL, LLC
   ADDRESS: 41 INDUSTRIAL DRIVE, EXETER, NH 03833
   DEED REFERENCE:
   TAX SHEET / LOT: 126/1
2. THIS PLAN IS BASED ON A FIELD SURVEY BY JAMES VERRA AND ASSOCIATES, INC. 3/2014, 4/2017 & 12/2019. ON SITE CONTROL ESTABLISHED USING SURVEY GRADE GPS UNITS. HORIZONTAL DATUM: NAD 1983 (1986 ADJUSTMENT) PRIMARY BM: NHDOT 379-0150 (PORTSMOUTH TRAFFIC CIRCLE) VERTICAL DATUM: NAVD 1988 PRIMARY BM: CITY CONTROL POINT "ALBA".
3. CONTRACTOR TO VERIFY SITE BENCHMARKS BY LEVELING BETWEEN 2 BENCHMARKS PRIOR TO THE SETTING OR ESTABLISHMENT OF ANY GRADES/ELEVATIONS. DISCREPANCIES ARE TO BE REPORTED TO JAMES VERRA AND ASSOC., INC.
4. SEE ROCKINGHAM COUNTY SUPERIOR COURT NOTICE OF DECISION DATED 3/18/2015, RCRD BOOK 5626, PAGE 1529. ALSO SEE STIPULATION DATED 1/30/2015, RCRD BOOK 5626, PAGE 1531.
5. THE SUBJECT TRACT LIES IN ZONE X (UNSHADED), AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN, AS SHOWN ON FLOOD INSURANCE RATE MAP 33015C0259E, EFFECTIVE DATE MAY 17, 2005, BY FEMA.

REFERENCE PLANS;

1. PLAT OF LAND, 64 VAUGHAN MALL, PORTSMOUTH, N.H., FOR BENDETSON-PORTSMOUTH REALTY TRUST, REVISED TO 9/17/2018, RCRD PLAN D-41080.
2. CONDOMINIUM SITE PLAN, THE PROVIDENT CONDOMINIUM, 25 MAPLEWOOD AVENUE, PORTSMOUTH, N.H., FOR 25 MAPLEWOOD AVENUE, LLC., DATED 12/20/2019, RCRD PLAN D-41922.
3. EXISTING CONDITIONS PLAN, PROPOSED SITE DEVELOPMENT PLANS, 25 MAPLEWOOD AVENUE, PORTSMOUTH, N.H., BY JAMES VERRA AND ASSOCIATES, INC., DATED 4/18/2017, NOT RECORDED.

ABUTTERS LIST

MAP-LOT	OWNER OF RECORD	DEED REF.
117-2	JAMER REALTY, INC. 80 HANOVER ST, PORTSMOUTH, NH 03801	3093/1283
117-4	SJW LTD C/O GENE FISK & ASSOCIATES, LLC 4 GREENLEAF WOODS DR, SUITE 102 PORTSMOUTH, NH 03801	2574/495
125-1	PARADE OFFICE, LLC C/O CATHARTES PRIVATE INVESTMENTS 31 MILK STREET, SUITE 501, BOSTON, MA 02109	N/A
126-1A	NORTHERN TIER REAL ESTATE ACQUISITION & DEVELOPMENT, LLC C/O JOHN J. DUSSI 4 MOODY LN, WEST NEWBURY, MA 01985	4814/563
126-2	25 MAPLEWOOD AVENUE, LLC 41 INDUSTRIAL DR, EXETER, NH 03833	6068/2230
126-3	CITY OF PORTSMOUTH 1 JUNKINS AVE, PORTSMOUTH, NH 03801	4701/534

APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN DATE

P5042

James Verra
& Associates Inc.
LAND SURVEYORS
101 SHATTUCK WAY, SUITE 8
Newington, New Hampshire
03801-7876
Tel 603-436-3557

ALTUS ENGINEERING, INC.
133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

NOT FOR CONSTRUCTION

ISSUED FOR: TAC

ISSUE DATE: JUNE 21, 2021

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	TAC	EBS	06/21/21

DRAWN BY: EBS
APPROVED BY: EDW
DRAWING FILE: 5042-SITE.dwg
SCALE: 22"x34" 1" = 20'
11"x17" 1" = 40'

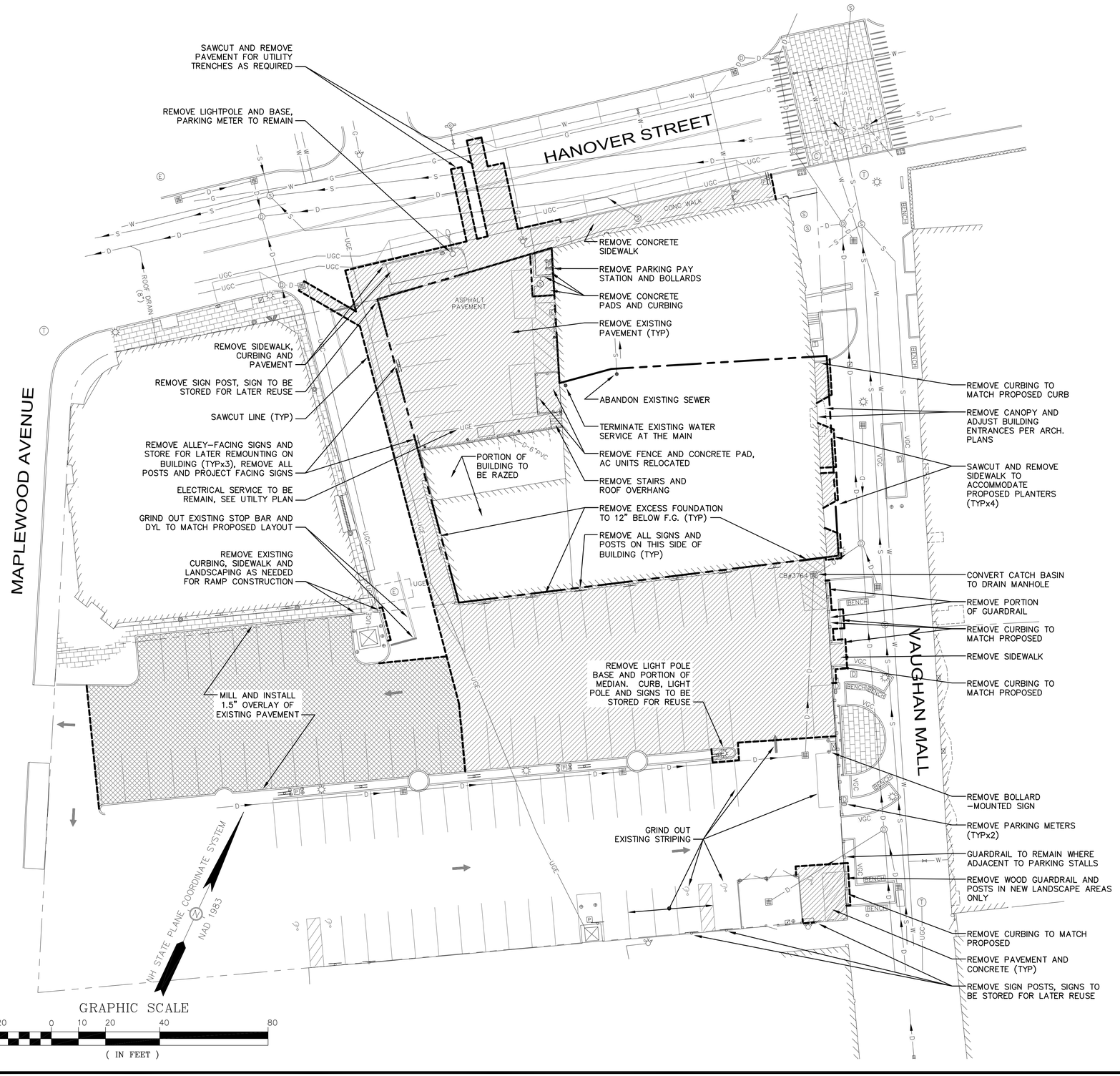
OWNER:
64 VAUGHAN MALL, LLC
41 INDUSTRIAL DRIVE
EXETER, NH 03833

APPLICANT:
HAMPSHIRE DEVELOPMENT CORP.
41 INDUSTRIAL DRIVE
EXETER, NH 03833

PROJECT:
64 VAUGHAN MALL BUILDING RESTORATION
TAX MAP 126, LOT 1
64 VAUGHAN MALL
PORTSMOUTH, NH 03801

TITLE:
LOT LINE ADJUSTMENT PLAN

SHEET NUMBER:
C-1



DEMOLITION NOTES

1. CITY DEMOLITION PERMIT REQUIRED PRIOR TO ANY DEMOLITION ACTIVITIES. CONTRACTOR IS NOTIFIED THAT THIS PERMIT PROCESS MAY REQUIRE A 30-DAY LEAD TIME.
2. CONTRACTOR SHALL SAFELY SECURE THE SITE AND WORK LIMITS WITH SECURITY FENCING WHICH SHALL BE LOCKED DURING NON-WORK HOURS.
3. CONTRACTOR SHALL PRESERVE AND PROTECT ALL EXISTING UTILITIES SCHEDULED TO REMAIN.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE TIMELY NOTIFICATION OF ALL PARTIES, CORPORATIONS, COMPANIES, INDIVIDUALS AND STATE AND LOCAL AUTHORITIES OWNING AND/OR HAVING JURISDICTION OVER ANY UTILITIES RUNNING TO, THROUGH OR ACROSS AREAS TO BE DISTURBED BY DEMOLITION AND/OR CONSTRUCTION ACTIVITIES WHETHER OR NOT SAID UTILITIES ARE SUBJECT TO DEMOLITION, RELOCATION, MODIFICATION AND/OR CONSTRUCTION.
5. ALL UTILITY DISCONNECTIONS/DEMOLITIONS/RELOCATIONS SHALL BE COORDINATED BETWEEN THE CONTRACTOR, ALL APPROPRIATE UTILITY COMPANIES, PORTSMOUTH DPW AND ABUTTING PROPERTY OWNERS. UNLESS OTHERWISE SPECIFIED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELATED EXCAVATION, TRENCHING AND BACKFILLING.
6. WHERE SPECIFIED TO REMAIN, MANHOLE RIMS, CATCH BASIN GRATES, VALVE COVERS, HANDHOLES, ETC. SHALL BE ADJUSTED TO FINISH GRADE UNLESS OTHERWISE SPECIFIED.
7. CONTRACTOR SHALL OBTAIN AN ENCUMBRANCE PERMIT FROM THE CITY OF PORTSMOUTH TO USE PORTIONS OF THE ALLEYWAY, PUBLIC STREETS AND THE WORTH LOT DURING CONSTRUCTION AS STAGING AND CONSTRUCTION AREAS.
8. SEE EROSION CONTROL PLANS FOR EROSION AND SEDIMENT CONTROL MEASURES THAT SHALL BE IN PLACE PRIOR TO DEMOLITION ACTIVITIES.
9. ALL MATERIALS SCHEDULED FOR DEMOLITION OR REMOVAL ON PRIVATE PROPERTY SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE SPECIFIED. GRANITE CURBING AND BRICK SCHEDULED TO BE REMOVED FROM PUBLIC PROPERTY SHALL BE SALVAGED TO PORTSMOUTH DPW.
10. ALL MATERIAL SCHEDULED TO BE REMOVED SHALL BE LEGALLY DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS/CODES.
11. WATER: PORTSMOUTH DPW, JIM TOW, (603) 427-1530.
12. TELECOMMUNICATIONS: FAIRPOINT, JOE CONSIDINE, (603) 427-5525.
13. CABLE: COMCAST, MIKE COLLINS, (603) 679-5695, EXT. 1037.
14. ELECTRICAL: EVERSOURCE, MICHAEL BUSBY, (603) 332-4227, EXT. 5555334.
15. GAS: UNITIL, DAVID BEAULIEU, (603) 294-5144.
16. CONTRACTOR TO CONTACT PORTSMOUTH DPW A MINIMUM OF TWO WEEKS PRIOR TO ANY DEMOLITION TO COORDINATE ALL WORK CONCERNING DISCONNECTION/DEMOLITION OF ANY PROPOSED WATER AND SEWER LINE IMPROVEMENTS.
17. ALL WATER MAIN AND SERVICE DISCONNECTIONS SHALL CONFORM TO PORTSMOUTH DPW STANDARDS.
18. NO BURNING SHALL BE PERMITTED PER LOCAL REGULATIONS.
19. HAZARDOUS MATERIALS ENCOUNTERED DURING DEMOLITION AND CONSTRUCTION ACTIVITIES SHALL BE ABATED IN STRICT ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL REGULATIONS.
20. AT NO TIME SHALL ANY UTILITY SERVICE OR VEHICULAR ACCESS TO ABUTTING PROPERTIES BE COMPLETELY INTERRUPTED UNLESS A FULL SHUTDOWN IS COORDINATED WITH ALL AFFECTED PARTIES AND UTILITY PROVIDER(S).
21. SHOULD GROUNDWATER BE ENCOUNTERED DURING EXCAVATION, APPROPRIATE BEST MANAGEMENT PRACTICES SHALL BE EMPLOYED TO ENSURE SEDIMENT LADEN WATER IS NOT DISCHARGED INTO THE CITY DRAINAGE SYSTEM. A DISCHARGE PERMIT SHALL BE OBTAINED PRIOR TO DISCHARGING GROUNDWATER.
22. THIS PLAN IS INTENDED TO PROVIDE MINIMUM GUIDELINES FOR THE DEMOLITION OF EXISTING SITE FEATURES. UNLESS OTHERWISE NOTED TO REMAIN, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL BUILDINGS, PAVEMENT, CONCRETE, CURBING, SIGNS, POLES, UTILITIES, FENCES, VEGETATION AND OTHER EXISTING FEATURES AS NECESSARY TO FULLY CONSTRUCT THE PROJECT.

ALTUS ENGINEERING, INC.
133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

ERIC D. WEINRIEB No. 7634 LICENSED PROFESSIONAL ENGINEER - STATE OF NEW HAMPSHIRE
6/21/21

NOT FOR CONSTRUCTION

ISSUED FOR: TAC

ISSUE DATE: JUNE 21, 2021

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	TAC WORK SESSION	EBS	05/05/20
1	TAC WORK SESSION	EBS	07/07/20
2	TAC	EBS	10/19/20
3	PB CONSULTATION	EBS	11/02/20
4	TAC	EBS	03/22/21
5	TAC	EBS	04/19/21
6	TAC	EBS	05/19/21
7	TAC	EBS	06/21/21

DRAWN BY: EBS
APPROVED BY: EDW
DRAWING FILE: 5042-SITE.dwg

SCALE: 22"x34" 1" = 20'
11"x17" 1" = 40'

OWNER:
64 VAUGHAN MALL, LLC
41 INDUSTRIAL DRIVE
EXETER, NH 03833

APPLICANT:
HAMPSHIRE DEVELOPMENT CORP.
41 INDUSTRIAL DRIVE
EXETER, NH 03833

PROJECT:
64 VAUGHAN MALL BUILDING RESTORATION
TAX MAP 126, LOT 1
64 VAUGHAN MALL
PORTSMOUTH, NH 03801

TITLE:
DEMOLITION PLAN

SHEET NUMBER:
C-2

P5042

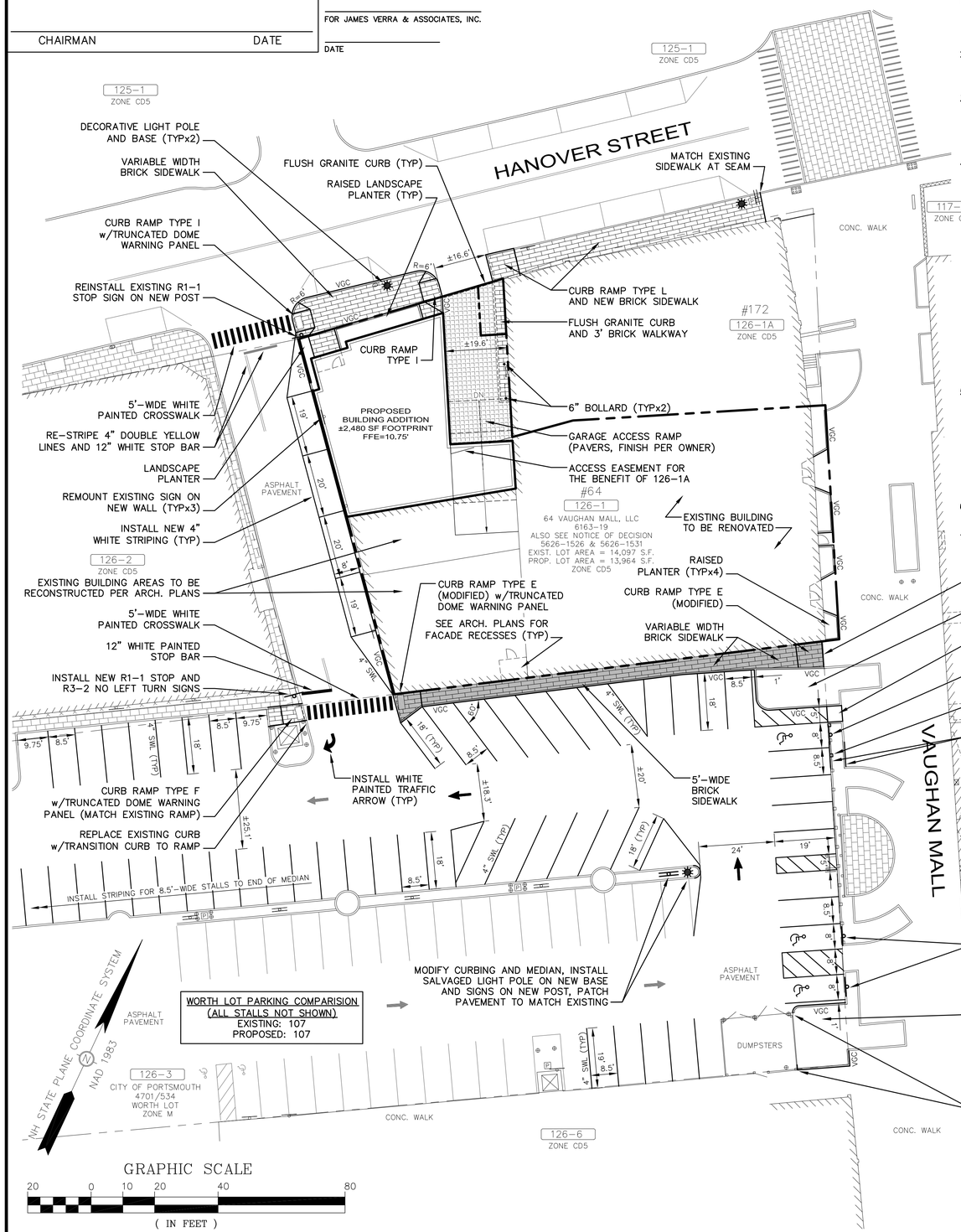
APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN DATE

THE SOLE PURPOSE OF THIS PLAN IS TO DEPICT THE LOCATION OF EXISTING AND PROPOSED IMPROVEMENTS ON THE SITE. RECORDING OF THIS PLAN WAS A REQUIREMENT OF THE PORTSMOUTH PLANNING BOARD AS PART OF THEIR APPROVAL.

FOR JAMES VERRA & ASSOCIATES, INC.

DATE

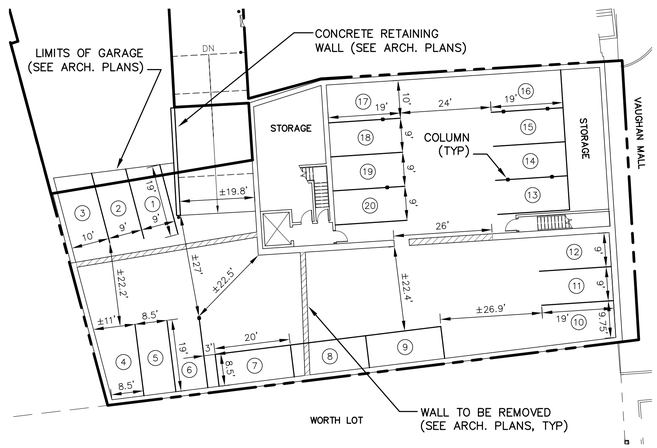


NOTES

1. DESIGN INTENT – THIS PLAN IS INTENDED TO DEPICT THE RETROFIT OF THE EXISTING BUILDING TO INCLUDE AN ADDITION, UNDERGROUND PARKING GARAGE, RETAIL SPACE AND 14 RESIDENTIAL UNITS ALONG WITH A SIDEWALK, MODIFIED PARKING SPACES AND LANDSCAPE ISLANDS ON THE ABUTTING WORTH LOT.
2. THE BASE PLAN USED HERE WAS DEVELOPED FROM "EXISTING CONDITIONS PLAN, 64 VAUGHAN MALL, PORTSMOUTH, NH" BY JAMES VERRA AND ASSOCIATES, INC., DATED FEBRUARY 3, 2020.
3. ZONE: CD5 (CHARACTER 5)
   M (MUNICIPAL) FOR OFFSITE IMPROVEMENTS ON WORTH LOT
   OVERLAY: DOWNTOWN OVERLAY DISTRICT
   HISTORIC OVERLAY DISTRICT
   FACADE: STOREFRONT
4. DIMENSIONAL REQUIREMENTS:

		EXISTING	PROPOSED
FRONT YARD:	5' MAX.	4.3'	SAME
SECONDARY FRONT YARD:	5' MAX.	58.1'	5'
SIDE YARD:	NR	0'	SAME
REAR YARD:	5'	0.15'	SAME
FRONT LOT LINE BUILDOUT:	80% WIDTH MIN.	100%	SAME
SECONDARY BUILDOUT:	80% WIDTH MIN.	0%	80% (47')
MAX. BUILDING BLOCK:	225'		
MAX. FACADE MODULATION:	100'		
MAX. ENTRANCE SPACING:	50'		
MAX. BUILDING COVERAGE:	95%	70.0%	89.4%
MAX. BUILDING FOOTPRINT:	20,000 S.F.	10,008 S.F.	12,488 S.F.
MIN. LOT AREA:	NR	14,097 S.F.	13,964 S.F.
MIN. LOT AREA/DWELLING:	NR		
MIN. OPEN SPACE:	5%	0% (0 SF)	5% (698 SF)
	(349 S.F. (VAUGHAN) + 349 S.F. (HANOVER) = 698 S.F.)		
MAX. GND. FLR. GFA/USE:	15,000 S.F.	±10,014 S.F.	12,476 S.F.
MAX. BUILDING HEIGHT:	3 STORIES or 40'	±40'	40'
MAX. GROUND FLOOR FFE:	SIDEWALK GRADE +3'		

5. PARKING REQUIREMENTS:
   DWELLING UNITS: 1.3 SPACES / DWELLING UNIT OVER 750 S.F.
   14 UNITS x 1.3 = 18.2 SPACES REQUIRED
   VISITOR PARKING: 1 SPACE / 5 DWELLING UNITS (FOR LOT w/OVER 4 UNITS)
   14 UNITS / 5 = 2.8 SPACES REQUIRED
   NON-RESIDENTIAL USE: NR
   DOWNTOWN OVERLAY: SUBTRACT 4 SPACES/LOT
   TOTAL PARKING REQUIRED: 17 SPACES
   TOTAL PARKING PROVIDED: 20 SPACES (UNDERGROUND)
6. ALL BONDS AND FEES SHALL BE PAID/POSTED PRIOR TO INITIATING CONSTRUCTION.
7. ALL CONDITIONS OF THIS APPROVAL SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS.
8. ALL CONSTRUCTION SHALL MEET THE MINIMUM CONSTRUCTION STANDARDS OF THE CITY OF PORTSMOUTH & NHDOT'S STANDARD SPECIFICATIONS FOR ROAD & BRIDGE, LATEST EDITION. THE MORE STRINGENT SPECIFICATION SHALL GOVERN.
9. CLEAN AND COAT VERTICAL FACE OF EXISTING PAVEMENT AT SAWCUT LINE WITH RS-1 IMMEDIATELY PRIOR TO PLACING NEW BITUMINOUS CONCRETE.
10. THE CONTRACTOR SHALL VERIFY ALL BENCHMARKS AND TOPOGRAPHY IN THE FIELD PRIOR TO CONSTRUCTION.
11. AREA OF DISTURBANCE IS UNDER 43,560 SF, COVERAGE UNDER EPA NPDES PHASE II CONSTRUCTION GENERAL PERMIT IS NOT REQUIRED.
12. PAVEMENT MARKINGS SHALL BE CONSTRUCTED USING WHITE, YELLOW, OR BLUE TRAFFIC PAINT (WHERE SPECIFIED) MEETING THE REQUIREMENTS OF AASHTO M248, TYPE F OR EQUAL. PAINTED ISLANDS AND LOADING ZONES SHALL BE 4"-WIDE DIAGONAL WHITE LINES 3'-0" O.C. BORDERED BY 4"-WIDE WHITE LINES. PARKING STALLS SHALL BE SEPARATED BY 4"-WIDE WHITE LINES. SEE DETAILS FOR HANDICAP SYMBOLS, SIGNS AND SIGN DETAILS. PAVEMENT MARKINGS SHALL BE INSTALLED AT LEAST 14-DAYS AFTER INSTALLATION OF WEARING COURSE PAVEMENT. CONTRACTOR SHALL APPLY TWO (2) COATS OF ALL PAVEMENT MARKINGS.
13. PAVEMENT MARKINGS AND SIGNS SHALL CONFORM TO THE REQUIREMENTS OF THE "MANUAL ON UNIFORM TRAFFIC DEVICES," "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" AND THE AMERICANS WITH DISABILITIES ACT (ADA), LATEST EDITIONS.
14. UNLESS OTHERWISE NOTED, ALL NEW CURBING SHALL BE VERTICAL GRANITE WITH A MINIMUM RADIUS OF 4'.
15. THE CONTRACTOR SHALL VERIFY ALL BUILDING DIMENSIONS WITH THE ARCHITECTURAL AND STRUCTURAL DRAWINGS PRIOR TO CONSTRUCTION. ANY AND ALL DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF BOTH THE ARCHITECT AND CIVIL ENGINEER FOR RESOLUTION.
16. ALL CONDITIONS ON THIS PLAN SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS.
17. ALL IMPROVEMENTS SHOWN ON THIS SITE PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGES SHALL BE MADE TO THIS SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR
18. THIS SITE PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
19. SITEWORK CONTRACTOR SHALL PREPARE A STAMPED AS-BUILT SITE PLAN STAMPED BY A LICENSED LAND SURVEYOR (LLS) & PROVIDE A DIGITAL (CAD FORMAT) COPY FOR THE CITY'S G.I.S. DATA BASE.
20. TRASH AND RECYCLING SHALL BE STORED INSIDE BUILDING.
21. THIS DEVELOPMENT IS SUBJECT TO LICENSING AGREEMENTS w/THE PORTSMOUTH CITY COUNCIL.
22. RESTAURANTS SHALL NOT OCCUPY BUILDING WITHOUT THE INSTALLATION OF A GREASE TRAP MEETING CITY CODE.
23. ALL SIDEWALKS TO BE CONSTRUCTED WITHIN PROJECT LIMITS SHALL BE BRICK. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING PORTSMOUTH DPW TO CONFIRM BRICK SPECIFICATIONS.
24. STREET ADDRESSES FOR EACH USE SHALL BE DETERMINED BY PORTSMOUTH FIRE DEPARTMENT & DPW.
25. SNOW SHALL BE STORED AT THE EDGE OF PAVEMENT, IN AREAS SHOWN ON THE PLAN, OR TRUCKED OFF SITE.
26. BUILDING USES BY FLOOR (BY FOOTPRINT, ACTUAL SPACE MAY VARY):
    BASEMENT: ±9,326 S.F. PARKING
    FLOOR 1: ±12,334 S.F. RETAIL
    FLOORS 2-4: ±12,488 S.F. RESIDENTIAL
    TOTAL: ±59,124 S.F.



BASEMENT GARAGE PARKING LAYOUT

ALTUS ENGINEERING, INC.
133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

ERIC D. WEINRIEB No. 7634 LICENSED PROFESSIONAL ENGINEER – STATE OF NEW HAMPSHIRE

6/21/21

NOT FOR CONSTRUCTION

ISSUED FOR: TAC

ISSUE DATE: JUNE 21, 2021

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	TAC WORK SESSION	EBS	05/05/20
1	TAC WORK SESSION	EBS	07/07/20
2	TAC	EBS	10/19/20
3	PB CONSULTATION	EBS	11/02/20
4	REV. BLDG. HEIGHT	EBS	01/26/21
5	TAC	EBS	03/22/21
6	REV. FOOTPRINT FOR HDC	EBS	04/08/21
7	TAC	EBS	04/19/21
8	TAC	EBS	05/19/21
9	TAC	EBS	06/21/21

DRAWN BY: EBS
APPROVED BY: EDW
DRAWING FILE: 5042-SITE.dwg

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11"x17" 1" = 40'

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TAX MAP 126, LOT 1
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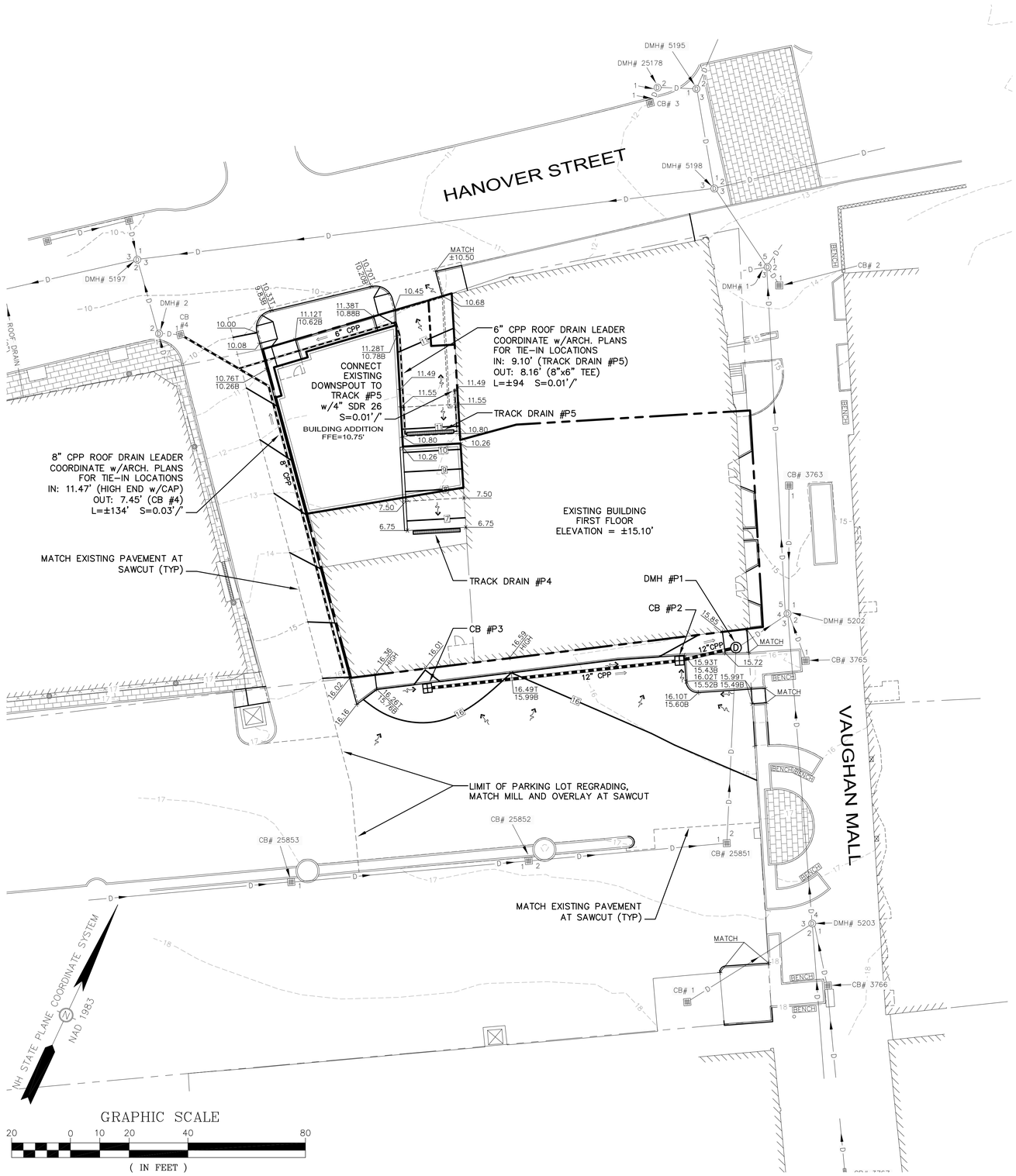
PORTSMOUTH, NH 03801

TITLE: SITE PLAN

SHEET NUMBER: C-3

P5042



DRAINAGE SCHEDULE

CB #4 (EXISTING)
RIM=9.57'
IN: 7.45' (NEW 8" ROOF LEADER)
OUT: ±7.32' (EXISTING TO DMH #2)
12" PVC (EXISTING)

DMH #P1
(FORMER CB #3764)
RIM=±15.45'(ADJUST RIM TO MATCH RAMP SLOPE)
IN: 11.30' (NEW 12" CB #P2)
IN: ±11.20' (EXIST. 12" CB #25851)
OUT: ±11.10' (TO DMH #5202)
12" RCP (EXISTING)

CB #P2
RIM=15.30'
IN: 11.46' (12" CB #P3)
OUT: 11.36' (TO DMH #P1)
12" CPP
L=±12' S=0.005'/'

CB #P3
RIM=15.35'
OUT: 11.89' (TO CB #P2)
12" CPP
L=±86' S=0.005'/'

TRACK DRAIN #P4
RIM=6.75'
16' LONG x 1.17' WIDE
w/EVAPORATOR (COORDINATE w/ARCH. PLANS FOR MODEL, CONDUIT, WIRING AND CIRCUITRY)

TRACK DRAIN #P5
RIM=10.82'
16' LONG x 1.17' WIDE
IN: 9.57' (4" ROOF LEADER)
OUT: 9.57'
w/EXTERNAL DROP TO 9.10'
6" CPP (TO 8" ROOF LEADER)
L=±94' S=0.01'/'

GRADING AND DRAINAGE NOTES

1. DO NOT BEGIN CONSTRUCTION UNTIL ALL STATE AND LOCAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED.
2. CONTRACTOR SHALL OBTAIN A "DIGSAFE" NUMBER AT LEAST 72 HOURS PRIOR TO COMMENCING CONSTRUCTION.
3. ALL CONSTRUCTION SHALL MEET THE MINIMUM CONSTRUCTION STANDARDS OF THE CITY OF PORTSMOUTH AND NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION. THE MORE STRINGENT SPECIFICATION SHALL GOVERN.
4. ALL BENCHMARKS AND TOPOGRAPHY SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO INITIATING CONSTRUCTION.
5. UNLESS OTHERWISE AGREED IN WRITING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING TEMPORARY BENCHMARKS (TBMS) AND PERFORMING ALL CONSTRUCTION SURVEY LAYOUT.
6. PRIOR TO CONSTRUCTION, FIELD VERIFY JUNCTIONS, LOCATIONS AND ELEVATIONS/INVERTS OF ALL EXISTING STORMWATER AND UTILITY LINES. PRESERVE AND PROTECT LINES TO BE RETAINED.
7. TEMPORARY INLET PROTECTION MEASURES SHALL BE INSTALLED IN ALL CATCH BASINS WITHIN 100' OF THE PROJECT SITE WHEN SITE WORK WITHIN CONTRIBUTING AREAS IS ACTIVE OR SAID AREAS HAVE NOT BEEN STABILIZED.
8. PROTECTION OF SUBGRADE: THE CONTRACTOR SHALL BE REQUIRED TO MAINTAIN STABLE, DEWATERED SUBGRADES FOR FOUNDATIONS, PAVEMENT AREAS, UTILITY TRENCHES, AND OTHER AREAS DURING CONSTRUCTION. SUBGRADE DISTURBANCE MAY BE INFLUENCED BY EXCAVATION METHODS, MOISTURE, PRECIPITATION, GROUNDWATER CONTROL, AND CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO PREVENT SUBGRADE DISTURBANCE. SUCH PRECAUTIONS MAY INCLUDE DIVERTING STORMWATER RUNOFF AWAY FROM CONSTRUCTION AREAS, REDUCING TRAFFIC IN SENSITIVE AREAS, AND MAINTAINING AN EFFECTIVE DEWATERING PROGRAM. SOILS EXHIBITING HEAVING OR INSTABILITY SHALL BE OVER EXCAVATED TO MORE COMPETENT BEARING SOIL AND REPLACED WITH FREE DRAINING STRUCTURAL FILL. IF THE EARTHWORK IS PERFORMED DURING FREEZING WEATHER, EXPOSED SUBGRADES ARE SUSCEPTIBLE TO FROST. NO FILL OR UTILITIES SHALL BE PLACED ON FROZEN GROUND. THIS WILL LIKELY REQUIRE REMOVAL OF A FROZEN SOIL CRUST AT THE COMMENCEMENT OF EACH DAY'S OPERATIONS. THE FINAL SUBGRADE ELEVATION WOULD ALSO REQUIRE AN APPROPRIATE DEGREE OF INSULATION AGAINST FREEZING.
9. IF SUITABLE, EXCAVATED MATERIALS SHALL BE PLACED AS FILL WITHIN UPLAND AREAS ONLY AND SHALL NOT BE PLACED WITHIN WETLANDS. PLACEMENT OF BORROW MATERIALS SHALL BE PERFORMED IN A MANNER THAT PREVENTS LONG TERM DIFFERENTIAL SETTLEMENT. EXCESSIVELY WET MATERIALS SHALL BE STOCKPILED AND ALLOWED TO DRAIN BEFORE PLACEMENT. FROZEN MATERIAL SHALL NOT BE USED FOR CONSTRUCTION.
10. ALL CATCH BASIN, MANHOLE AND OTHER DRAINAGE RIMS SHALL BE SET FLUSH WITH OR NO LESS THAN 0.1' BELOW FINISH GRADE. ANY RIM ABOVE SURROUNDING FINISH GRADE SHALL NOT BE ACCEPTED.
11. ALL SPOT GRADES ARE AT FINISH GRADE AND BOTTOM OF CURB WHERE APPLICABLE.
12. IN ORDER TO PROVIDE VISUAL CLARITY ON THE PLANS, DRAINAGE AND OTHER UTILITY STRUCTURES MAY NOT BE DRAWN TO SCALE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER SIZING AND LOCATION OF ALL STRUCTURES AND IS DIRECTED TO RESOLVE ANY POTENTIAL DISCREPANCY WITH THE ENGINEER PRIOR TO CONSTRUCTION.

LEGEND

- PROPERTY LINE
- EASEMENT LINE
- EXISTING PAVEMENT/CURB
- VGC — PROPOSED PAVEMENT/VERTICAL GRANITE CURB
- 60 — EXISTING CONTOUR
- 60 — PROPOSED CONTOUR
- 100.00 X 104.00T 100.00B — PROPOSED SPOT GRADE/TOP & BOTTOM OR CURB/WALL
- W — EXISTING WATER/CURB STOP/VALVE/HYDRANT
- S — EXISTING SEWER/MANHOLE
- G — EXISTING GAS/VALVE
- OHW UGE — EXIST. OVER/UNDERGROUND UTILITIES/POLE
- D — EXISTING DRAINAGE/CB/DMH
- PW — PROPOSED THRUST BLOCK/WATER/CURB STOP/VALVE/HYDRANT
- PW F — PROPOSED DOMESTIC WATER SERVICE/FIRE WATER SERVICE
- S — PROPOSED SEWER/MANHOLE/CLEANOUT
- G — PROPOSED GAS SERVICE
- OHW — PROPOSED OVERHEAD UTILITIES/UTILITY POLE
- UGE — PROPOSED UNDERGROUND ELECTRIC/PHONE/TV
- D — PROPOSED DRAINAGE (HARD PIPE)/CB/DCB/DMH/FES
- CPP FES HDWL — CORRUGATED PLASTIC PIPE/FLARED END SECTION/HEADWALL
- 4% — PROPOSED GROUND SLOPE/APPROX. GRADE/STONE CHECK DAM
- X — SILTFENCE/SEDIMENT BARRIER/CONST. FENCE
- STABILIZED CONSTRUCTION EXIT
- PROPOSED SAWCUT LINE

P5042

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STATE OF NEW HAMPSHIRE – ERIC D. WEINRIEB No. 7634 (LICENSED) PROFESSIONAL ENGINEER
6/21/21

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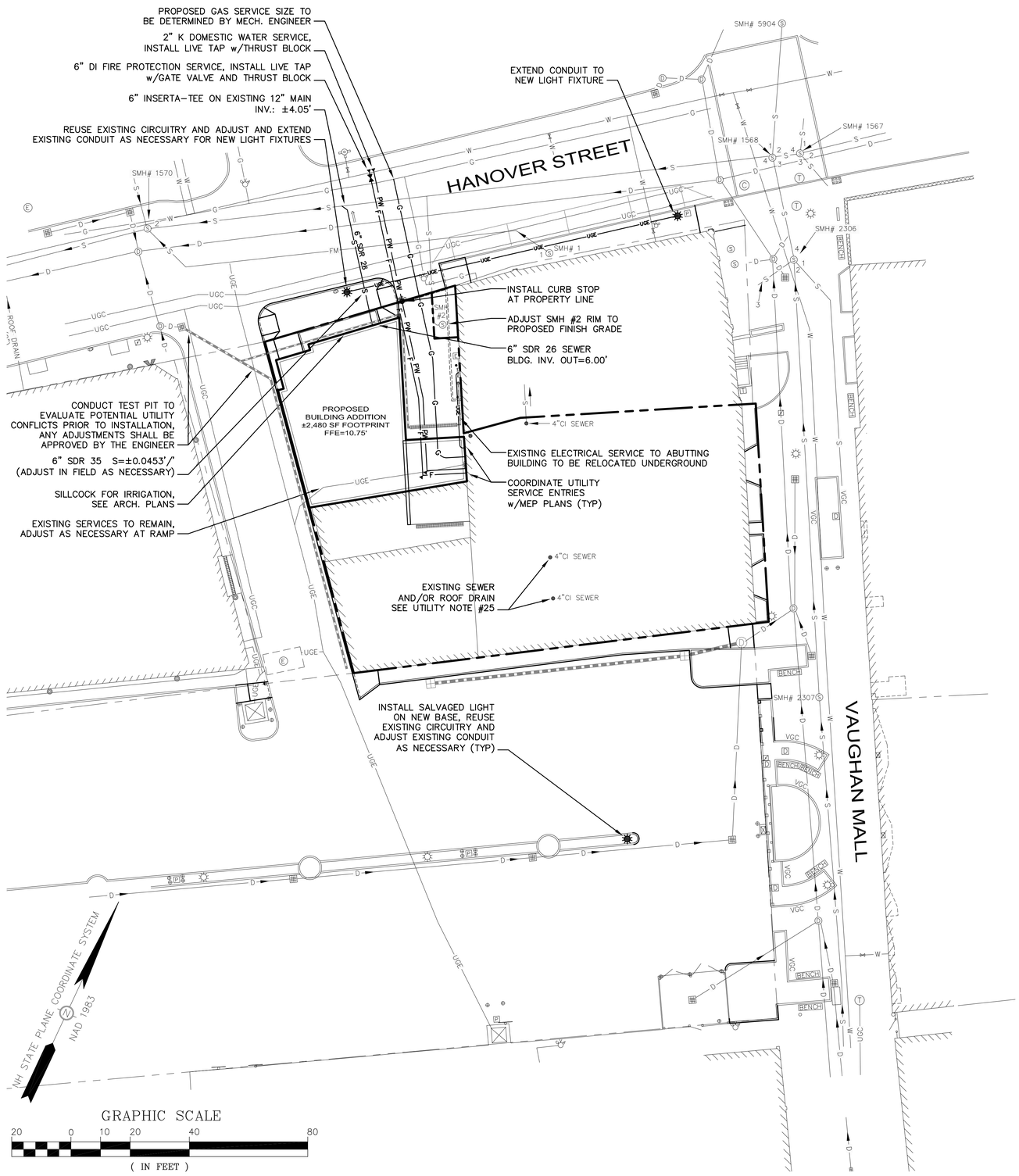
GRADING AND DRAINAGE PLAN

SHEET NUMBER:
C-4



SEWER TABLE

SMH# 1
RIM EL= 11.80
(1) INV OUT 4"PVC FM= 7.47

SMH# 2
RIM EL= 11.53
(COULD NOT OPEN)

SMH# 1567
RIM EL= 12.96
(1) PLUGGED
(2) INV IN 12"RCP= 5.19
(3) INACTIVE
(4) INV OUT 12"UNK.= 4.71

SMH# 1568
RIM EL= 12.86
(1) INV IN 8"PVC= 4.88
(2) INV IN 12"UNK.= 4.68
(3) INV IN 24"RCP= 5.05
(4) INV OUT 12"RCP= 4.70

SMH# 1570
RIM EL= 10.16
(2) INV IN 15"RCP= 3.74

SMH# 2306
RIM EL= 13.84
(1) INV IN 10"VCP= 6.86
(2) INV IN 24"RCP= 8.88
(3) INV IN 6"PVC= 11.24
(4) INV OUT 24"RCP= 6.83
(23" CSU PER DPW)

SMH# 2307
RIM EL= 15.50
CL FLOW= 10.66
(OVAL RCP 15"W X 18"H)
(23" CSU PER DPW)

SEWER FLOW CALCS.

APARTMENT:
38 GPD/PERSON
(14) 2 PERSON UNITS = 28 PEOPLE
28 x 38 GPD = 1,064 GPD

SHOPPING CENTER:
ASSUME 4 RETAIL SPACES
8 GPD/EMPLOYEE
1.5 GPD/PARKING SPACE
4 x 2 EMPL./EA. = 8 EMPLOYEES
8 x 8 GPD = 64 GPD
(NO ONSITE RETAIL PARKING)

1,064 + 64 = 1,028 GPD TOTAL

*AVERAGE DAILY PER CAPITA FLOW CALCULATED FROM METCALF & EDDY/AECOM "WASTEWATER ENGINEERING TREATMENT AND RESOURCE RECOVERY", 5TH EDITION

UTILITY NOTES

1. THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE AND ARE BASED UPON THE FIELD LOCATION OF ALL VISIBLE STRUCTURES (IE. CATCH BASINS, MANHOLES, WATER GATES, ETC.) AND INFORMATION COMPILED FROM PLANS PROVIDED BY UTILITY PROVIDERS AND GOVERNMENTAL AGENCIES. AS SUCH, THEY ARE NOT INCLUSIVE AS OTHER UTILITIES AND UNDERGROUND STRUCTURES THAT ARE NOT SHOWN ON THE PLANS MAY EXIST. THE ENGINEER, SURVEYOR AND OWNER ACCEPT NO RESPONSIBILITY FOR POTENTIAL INACCURACIES IN THE PLAN AND/OR UNFORESEEN CONDITIONS. THE CONTRACTOR SHALL NOTIFY, IN WRITING, SAID AGENCIES, UTILITY PROVIDERS, CITY OF PORTSMOUTH DPW AND OWNER'S AUTHORIZED REPRESENTATIVE AND CALL DIG SAFE AT 1 (800) DIG-SAFE AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO ANY EXCAVATION WORK.
2. PRIOR TO CONSTRUCTION, IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND FIELD VERIFY JUNCTIONS, LOCATIONS AND ELEVATIONS/INVERTS OF ALL EXISTING AND PROPOSED STORMWATER AND UTILITY LINES. CONFLICTS SHALL BE ANTICIPATED AND ALL EXISTING LINES TO BE RETAINED SHALL BE PROTECTED. ANY DAMAGE DONE TO EXISTING UTILITIES SHALL BE REPAIRED AND, IF NECESSARY, EXISTING UTILITIES SHALL BE RELOCATED AT NO EXTRA COST TO THE OWNER. ALL CONFLICTS SHALL BE RESOLVED WITH THE INVOLVEMENT OF THE ENGINEER, DPW AND APPROPRIATE UTILITIES.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE POSTING OF ALL BONDS AND PAYMENT OF ALL TAP, TIE-IN AND CONNECTION FEES.
4. ALL ROAD/LANE CLOSURES OR OTHER TRAFFIC INTERRUPTIONS SHALL BE COORDINATED WITH THE PORTSMOUTH POLICE DEPARTMENT AND DPW AT LEAST TWO WEEKS PRIOR TO COMMENCING RELATED CONSTRUCTION.
5. ALL CONSTRUCTION SHALL MEET THE MINIMUM CONSTRUCTION STANDARDS OF THE CITY OF PORTSMOUTH AND NHDOT STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, LATEST EDITION. THE MORE STRINGENT SPECIFICATION SHALL GOVERN.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRENCHING, BEDDING, BACKFILL & COMPACTION FOR ALL UTILITY TRENCHING IN ADDITION TO ALL CONDUIT INSTALLATION AND COORDINATION OF ALL REQUIRED INSPECTIONS.
7. ALL TRENCHING, PIPE LAYING AND BACKFILLING SHALL CONFORM TO FEDERAL OSHA AND CITY REGULATIONS.
8. SEE ARCHITECTURAL/MECHANICAL DRAWINGS FOR EXACT LOCATIONS & ELEVATIONS OF UTILITY CONNECTIONS AT BUILDING. COORDINATE ALL WORK WITHIN FIVE (5) FEET OF BUILDINGS WITH BUILDING CONTRACTOR AND ARCHITECTURAL/MECHANICAL DRAWINGS. ALL CONFLICTS AND DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY AND PRIOR TO COMMENCING RELATED WORK.
9. FINAL UTILITY LOCATIONS TO BE COORDINATED BETWEEN THE ARCHITECT, CONTRACTOR, APPROPRIATE UTILITY COMPANIES AND THE PORTSMOUTH DPW.
10. WATER: PORTSMOUTH DPW, JIM TOW, (603) 427-1530.
11. TELECOMMUNICATIONS: CONSOLIDATED, JOE CONSIDINE, (603) 427-5525.
12. CABLE: COMCAST, MIKE COLLINS, (603) 679-5695, EXT. 1037.
13. ELECTRICAL: EVERSOURCE, MICHEAL BUSBY, (603) 332-4227, EXT. 5555334. ALL ELECTRIC CONDUIT INSTALLATION SHALL BE INSPECTED BY EVERSOURCE PRIOR TO BACKFILL, 48-HOUR MINIMUM NOTICE REQUIRED.
14. GAS: UNITIL, DAVID BEAULIEU, (603) 294-5144.
15. DETECTABLE WARNING TAPE SHALL BE PLACED OVER THE ENTIRE LENGTH OF ALL BURIED UTILITIES, COLORS PER THE RESPECTIVE UTILITY PROVIDERS.
16. ALL WATER MAIN AND SERVICE INSTALLATIONS SHALL BE CONSTRUCTED AND TESTED PER PORTSMOUTH DPW STANDARDS AND SPECIFICATIONS. ALL OTHER UTILITIES SHALL BE TO THE STANDARDS AND SPECIFICATIONS OF THE RESPECTIVE UTILITY PROVIDERS.
17. WHERE WATER LINES CROSS, RUN ADJACENT TO OR ARE WITHIN 5' OF STORM DRAINAGE PIPES OR STRUCTURES, 2"-THICK CLOSED CELL RIGID BOARD INSULATION SHALL BE INSTALLED FOR FROST PROTECTION.
18. PER PORTSMOUTH DPW SPECIFICATIONS, ALL NEW WATERLINES SHALL BE WRAPPED WAITH A WATER TIGHT POLYETHYLENE WRAPPING FOR THEIR FULL LENGTH, ALL DOMESTIC WATER SERVICES SHALL BE PROVIDED WITH BACKFLOW PREVENTERS AND ALL JOINTS SHALL HAVE THREE (3) WEDGES PER JOINT.
19. WATER AND SANITARY SEWER LINES SHALL BE LOCATED AT LEAST 10' HORIZONTALLY FROM EACH OTHER. WHERE CROSSING, 18" MINIMUM VERTICAL CLEARANCE SHALL BE PROVIDED WITH WATER INSTALLED OVER SEWER.
20. SOLAR PANEL INSTALLATION, IF PROPOSED, SHALL COMPLY WITH NFPA 1, 2012, SECTION 11.12. AS AMENDED.
21. ALL STORM WATER CONNECTIONS/RECONNECTIONS TO THE CITY DRAINAGE SYSTEM SHALL REQUIRE A STORM WATER CONNECTION PERMIT. A CAPACITY USE SURCHARGE MAY APPLY.
22. FIRE ALARM PANEL SHALL BE MONITORED THROUGH A THIRD-PARTY SECURITY COMPANY. CONTRACTOR SHALL COORDINATE PANEL LOCATION AND INTERCONNECTION WITH CITY FIRE DEPT. AND ARCHITECT.
23. APPLICANT SHALL HAVE A SITE SURVEY CONDUCTED BY A RADIO COMMUNICATIONS CARRIER APPROVED BY THE CITY'S COMMUNICATION DIVISION. THE RADIO COMMUNICATIONS CARRIER MUST BE FAMILIAR AND CONVERSANT WITH THE POLICE AND RADIO CONFIGURATION. IF THE SITE SURVEY INDICATES IT IS NECESSARY TO INSTALL A SIGNAL REPEATER EITHER ON OR NEAR THE PROPOSED PROJECT, THOSE COSTS SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER. THE APPLICANT SHALL BE REQUIRED TO PAY FOR THE SITE SURVEY WHETHER OR NOT THE SURVEY INDICATES A REPEATER IS NECESSARY. THE OWNER SHALL COORDINATE WITH THE SUPERVISOR OF RADIO COMMUNICATIONS FOR THE CITY. THE SURVEY SHALL BE COMPLETED AND THE REPEATER, IF DETERMINED IT IS REQUIRED, SHALL BE INSTALLED PRIOR TO THE ISSUANCE OF CERTIFICATE OF OCCUPANCY.
24. CONTRTACTOR/OWNER SHALL PROVIDE DPW WITH DETAILS OF TEMPORARY & PERMANENT GROUNDWATER DEWATERING DESIGN IF NECESSARY.
25. CONTRACTOR SHALL VERIFY USE OF ALL INTERIOR STORM & SANITARY PIPING. CONTRATOR SHALL TAKE ALL NECESSARY MEASURES TO ENSURE THAT ALL STORMWATER IS SEPARATED FROM SANITARY FLOW.

P5042

ALTUS ENGINEERING, INC.
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(603) 433-2335 www.altus-eng.com

ERIC D. WEINRIEB No. 7634 LICENSED PROFESSIONAL ENGINEER - STATE OF NEW HAMPSHIRE
6/21/21

NOT FOR CONSTRUCTION

ISSUED FOR: TAC

ISSUE DATE: JUNE 21, 2021

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	TAC WORK SESSION	EBS	05/05/20
1	TAC WORK SESSION	EBS	07/07/20
2	TAC	EBS	10/19/20
3	PB CONSULTATION	EBS	11/02/20
4	TAC	EBS	03/22/21
5	TAC	EBS	04/19/21
6	TAC	EBS	05/19/21
7	TAC	EBS	06/21/21

DRAWN BY: EBS
APPROVED BY: EDW
DRAWING FILE: 5042-SITE.dwg

SCALE: 22"x34" 1" = 20'
11"x17" 1" = 40'

OWNER:
64 VAUGHAN MALL, LLC
41 INDUSTRIAL DRIVE
EXETER, NH 03833

APPLICANT:
HAMPSHIRE DEVELOPMENT CORP.
41 INDUSTRIAL DRIVE
EXETER, NH 03833

PROJECT:
64 VAUGHAN MALL BUILDING RESTORATION
TAX MAP 126, LOT 1
64 VAUGHAN MALL
PORTSMOUTH, NH 03801

TITLE:
UTILITIES PLAN

SHEET NUMBER:
C-5

SEDIMENT AND EROSION CONTROL NOTES

PROJECT NAME AND LOCATION

64 VAUGHAN MALL
PORTSMOUTH, NEW HAMPSHIRE
TAX MAP 126 LOT 1

LATITUDE: 043° 04' 36" N
LONGITUDE: 070° 45' 40" W

OWNER:

64 VAUGHAN MALL, LLC
10 INDUSTRIAL WAY
AMESBURY, MA 01913

APPLICANT:

HAMPSHIRE DEVELOPMENT CORP.
41 INDUSTRIAL PARK DRIVE
EXETER, NH 03833

DESCRIPTION

The project consists of the redevelopment of the existing building for commercial and residential purposes along with associated site improvements.

DISTURBED AREA

The total area to be disturbed for the redevelopment is approximately ±9,500 S.F. (±0.22 acres). USEPA NPDES Phase II compliance not required.

PROJECT PHASING

The proposed project will be completed in one phase.

NAME OF RECEIVING WATER

The site drains via an existing municipal closed drainage system to the Piscataqua River.

SEQUENCE OF MAJOR ACTIVITIES

1. Install temporary erosion control measures including silt fences, stabilized construction entrance and inlet sediment filters as noted on the plan. All temporary erosion control measures shall be maintained in good working condition for the duration of the project.
2. Demolish existing building and utilities as shown on Demolition Plan and reclaim pavement.
3. Rough grade site including placement of borrow materials.
4. Construct buildings and associated improvements.
5. Construct drainage structures, culverts, utilities, swales & pavement base course materials.
6. Install base course paving & curbing.
7. Install top course paving.
8. Install pavement markings and signs.
9. Loam (6" min) and seed all disturbed areas not paved or otherwise stabilized.
10. When all construction activity is complete and site is stabilized, remove all temporary erosion control measures and any sediment that has been trapped by these devices.

TEMPORARY EROSION & SEDIMENT CONTROL AND STABILIZATION PRACTICES

All work shall be in accordance with state and local permits. Work shall conform to the practices described in the "New Hampshire Stormwater Manual, Volumes 1 – 3", issued December 2008, as amended. As indicated in the sequence of Major Activities, the silt fences shall be installed prior to commencing any clearing or grading of the site. Structural controls shall be installed concurrently with the applicable activity. Once construction activity ceases permanently in an area, silt fences and any earth/dikes will be removed once permanent measures are established.

During construction, runoff will be diverted around the site with stabilized channels where possible. Sheet runoff from the site shall be filtered through hay bale barriers, stone check dams, and silt fences. All storm drain inlets shall be provided with hay bale filters or stone check dams. Stone rip rap shall be provided at the outlets of drain pipes and culverts where shown on the drawings.

Stabilize all ditches, swales, & level spreaders prior to directing flow to them.

Temporary and permanent vegetation and mulching is an integral component of the erosion and sedimentation control plan. All areas shall be inspected and maintained until vegetative cover is established. These control measures are essential to erosion prevention and also reduce costly rework of graded and shaped areas.

Temporary vegetation shall be maintained in these areas until permanent seeding is applied. Additionally, erosion and sediment control measures shall be maintained until permanent vegetation is established.

INSTALLATION, MAINTENANCE AND INSPECTION PROCEDURES FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES

A. GENERAL

These are general inspection and maintenance practices that shall be used to implement the plan:

1. The smallest practical portion of the site shall be denuded at one time.
2. All control measures shall be inspected at least once each week and following any storm event of 0.5 inches or greater.
3. All measures shall be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours.
4. Built–up sediment shall be removed from silt fence or other barriers when it has reached one–third the height of the fence or bale, or when "bulges" occur.
5. All diversion dikes shall be inspected and any breaches promptly repaired.
6. Temporary seeding and planting shall be inspected for bare spots, washouts, and unhealthy growth.
7. The owner's authorized engineer shall inspect the site on a periodic basis to review compliance with the Plans.
8. An area shall be considered stable if one of the following has occurred:
   a. Base coarse gravels have been installed in areas to be paved;
   b. A minimum of 85% vegetated growth as been established;
   c. A minimum of 3 inches of non–erosive material such as stone of riprap has been installed; – or –
   d. Erosion control blankets have been properly installed.
9. The length of time of exposure of area disturbed during construction shall not exceed 45 days.

B. MULCHING

Mulch shall be used on highly erodible soils, on critically eroding areas, on areas where conservation of moisture will facilitate plant establishment, and where shown on the plans.

1. Timing – In order for mulch to be effective, it must be in place prior to major storm events. There are two (2) types of standards which shall be used to assure this:
   a. Apply mulch prior to any storm event. This is applicable when working within 100 feet of wetlands. It will be necessary to closely monitor weather predictions, usually by contacting the National Weather Service in Concord, to have adequate warning of significant storms.
   b. Required Mulching within a specified time period. The time period can range from 21 to 28 days of inactivity on a area, the length of time varying with site conditions. Professional judgment shall be used to evaluate the interaction of site conditions (soil erodibility, season of year, extent of disturbance, proximity to sensitive resources, etc.) and the potential impact of erosion on adjacent areas to choose an appropriate time restriction.

INSTALLATION, MAINTENANCE AND INSPECTION PROCEDURES FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES (CON'T)

2. Guidelines for Winter Mulch Application –

Type	Rate per 1,000 s.f.	Use and Comments
Hay or Straw	70 to 90 lbs.	Must be dry and free from mold. May be used with plantings.
Wood Chips or Bark Mulch	460 to 920 lbs.	Used mostly with trees and shrub plantings.
Jute and Fibrous Matting (Erosion Blanket	As per manufacturer Specifications	Used in slope areas, water courses and other Control areas.
Crushed Stone 1/4" to 1–1/2" dia.	Spread more than 1/2" thick	Effective in controlling wind and water erosion.
Erosion Control Mix	2" thick (min)	* The organic matter content is between 80 and 100%, dry weight basis. * Particle size by weight is 100% passing a 6"screen and a minimum of 70 %, maximum of 85%, passing a 0.75" screen. * The organic portion needs to be fibrous and elongated. * Large portions of silts, clays or fine sands are not acceptable in the mix. * Soluble salts content is less than 4.0 mmhos/cm. * The pH should fall between 5.0 and 8.0.

3. Maintenance – All mulches must be inspected periodically, in particular after rainstorms, to check for rill erosion. If less than 90% of the soil surface is covered by mulch, additional mulch shall be immediately applied.

C. FILTERS

1. Silt Fence
   a. Synthetic filter fabric shall be a pervious sheet of propylene, nylon, polyester or ethylene yarn and shall be certified by the manufacturer or supplier as conforming to the following requirements:

Physical Property	Test	Requirements
Filtering Efficiency	VTM–51	75% minimum
Tensile Strength at 20% Maximum Elongation*	VTM–52	Extra Strength 50 lb/lin in (min) Standard Strength 30 lb/lin in (min)
Flow Rate	VTM–51	0.3 gal/sf/min (min)

   * Requirements reduced by 50 percent after six (6) months of installation.

   Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizer to provide a minimum of six (6) months of expected usable construction life at a temperature range of 0 degrees F to 120° F.

   b. Posts shall be spaced a maximum of ten (10) feet apart at the barrier location or as recommended by the manufacturer and driven securely into the ground (minimum of 16 inches).

   c. A trench shall be excavated approximately six (6) inches wide and eight (8) inches deep along the line of posts and upslope from the barrier.

   d. When standard strength filter fabric is used, a wire mesh support fence shall be fastened securely to the upslope side of the posts using heavy duty wire staples at least one (1) inch long, tie wires or hog rings. The wire shall extend no more than 36 inches above the original ground surfaces.

   e. The "standard strength" filter fabric shall be stapled or wired to the fence, and eight (8) inches of the fabric shall be extended into the trench. The fabric shall not extend more than 36 inches above the original ground surface. Filter fabric shall not be stapled to existing trees.

   f. When extra strength filter fabric and closer post spacing are used, the wire mesh support fence may be eliminated. In such a case, the filter fabric is stapled or wired directly to the posts with all other provisions of item (g) applying.

   g. The trench shall be backfilled and the soil compacted over the filter fabric.

   h. Silt fences shall be removed when they have served their useful purpose but not before the upslope areas has been permanently stabilized.

2. Sequence of Installation –
   Sediment barriers shall be installed prior to any soil disturbance of the contributing upslope drainage area.

3. Maintenance –
   a. Silt fence barriers shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. They shall be repaired if there are any signs of erosion or sedimentation below them. Any required repairs shall be made immediately. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water, the sediment barriers shall be replaced with a temporary stone check dam.

   b. Should the fabric on a silt fence or filter barrier decompose or become ineffective prior to the end of the expected usable life and the barrier still is necessary, the fabric shall be replaced promptly.

   c. Sediment deposits must be removed when deposits reach approximately one–third (1/3) the height of the barrier.

   d. Any sediment deposits remaining in place after the silt fence or other barrier is no longer required shall be removed. The area shall be prepared and seeded.

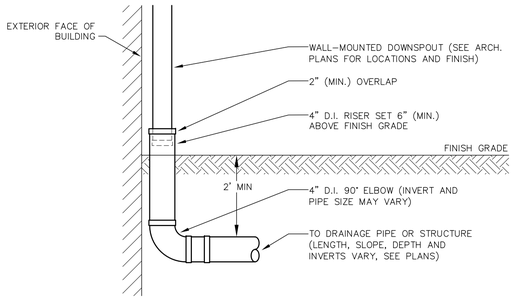
   e. Additional stone may have to be added to the construction entrance, rock barrier and riprap lined swales, etc., periodically to maintain proper function of the erosion control structure.

WINTER CONSTRUCTION NOTES

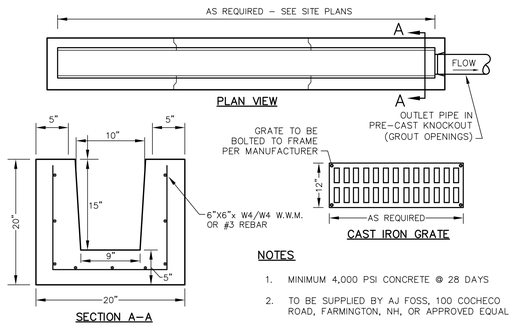
1. All proposed vegetated areas which do not exhibit a minimum of 85% vegetative growth by October 15th, or which are disturbed after October 15th, shall be stabilized by seeding and installing erosion control blankets on slopes greater than 3:1, and elsewhere seeding and placing 3 to 4 tons of mulch per acre, secured with anchored netting. The installation of erosion control blankets or mulch and netting shall not occur over accumulated snow or on frozen ground and shall be completed in advance of thaw or spring melt events;

2. All ditches or swales which do not exhibit a minimum of 85% vegetative growth by October 15th, or which are disturbed after October 15th, shall be stabilized temporarily with stone or erosion control blankets appropriate for the design flow conditions; and

3. After November 15th, incomplete road or parking surfaces where work has stopped for the winter season shall be protected with a minimum of 3 inches of crushed gravel per NHDOT Item 304.3.



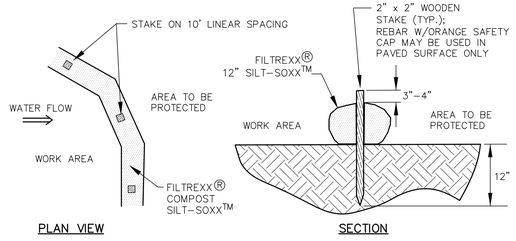
EXTERIOR ROOF DRAIN CONNECTION NOT TO SCALE



NOTES

1. MINIMUM 4,000 PSI CONCRETE @ 28 DAYS
2. TO BE SUPPLIED BY AJ FOSS, 100 COCHECO ROAD, FARMINGTON, NH, OR APPROVED EQUAL

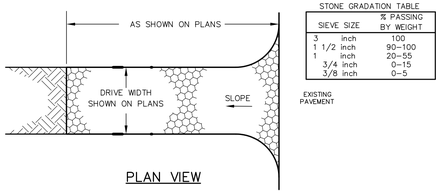
TRENCH DRAIN NOT TO SCALE



NOTES:

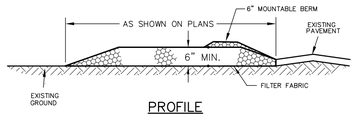
1. SILTSOXX MAY BY USED IN PLACE OF SILT FENCE OR OTHER SEDIMENT BARRIERS.
2. ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS.
3. SILTSOXX COMPOST/SOIL/ROCK/SEED FILL MATERIAL SHALL BE ADJUSTED AS NECESSARY TO MEET THE REQUIREMENTS OF THE SPECIFIC APPLICATION.
4. ALL SEDIMENT TRAPPED BY SILTSOXX SHALL BE DISPOSED OF PROPERLY.

TUBULAR SEDIMENT BARRIER NOT TO SCALE



STONE GRADATION TABLE	
SIEVE SIZE	% PASSING BY WEIGHT
3 inch	100
1 1/2 inch	90–100
1 inch	20–55
3/4 inch	0–15
3/8 inch	0–5

PLAN VIEW

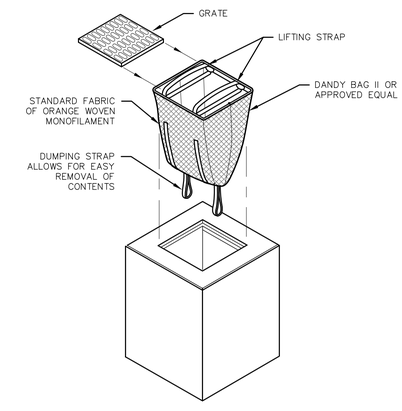


PROFILE

CONSTRUCTION SPECIFICATIONS

1. STONE SIZE – NHDOT STANDARD STONE SIZE #4 – SECTION 703 OF NHDOT STANDARD.
2. LENGTH – DETAILED ON PLANS (50 FOOT MINIMUM).
3. THICKNESS – SIX (6) INCHES (MINIMUM).
4. WIDTH – FULL DRIVE WIDTH UNLESS OTHERWISE SPECIFIED.
5. FILTER FABRIC – MIRAFI 600X OR EQUAL APPROVED BY ENGINEER.
6. SURFACE WATER CONTROL – ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS WILL REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS–OF–WAY MUST BE REMOVED IMMEDIATELY.
8. WHEELS SHALL BE CLEANED TO REMOVE MUD PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS–OF–WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. STABILIZED CONSTRUCTION EXITS SHALL BE INSTALLED AT ALL ENTRANCES TO PUBLIC RIGHTS–OF–WAY, AT LOCATIONS SHOWN ON THE PLANS, AND/OR WHERE AS DIRECTED BY THE ENGINEER.

STABILIZED CONSTRUCTION EXIT NOT TO SCALE



INSTALLATION AND MAINTENANCE:

INSTALLATION: REMOVE THE GRATE FROM CATCH BASIN. IF USING OPTIONAL OIL ABSORBENTS; PLACE ABSORBENT PILLOW IN UNIT. STAND GRATE ON END. MOVE THE TOP LIFTING STRAPS OUT OF THE WAY AND PLACE THE GRATE INTO CATCH BASIN INSERT SO THE GRATE IS BELOW THE TOP STRAPS AND ABOVE THE LOWER STRAPS. HOLDING THE LIFTING DEVICES, INSERT THE GRATE INTO THE INLET.

MAINTENANCE: REMOVE ALL ACCUMULATED SEDIMENT AND DEBRIS FROM VICINITY OF THE UNIT AFTER EACH STORM EVENT. AFTER EACH STORM EVENT AND AT REGULAR INTERVALS, LOOK INTO THE CATCH BASIN INSERT. IF THE CONTAINMENT AREA IS MORE THAN 1/3 FULL OF SEDIMENT, THE UNIT MUST BE EMPTIED. TO EMPTY THE UNIT, LIFT THE UNIT OUT OF THE INLET USING THE LIFTING STRAPS AND REMOVE THE GRATE. IF USING OPTIONAL ABSORBENTS; REPLACE ABSORBENT WHEN NEAR SATURATION.

UNACCEPTABLE INLET PROTECTION METHOD:

A SIMPLE SHEET OF GEOTEXTILE UNDER THE GRATE IS NOT ACCEPTABLE.

STORM DRAIN INLET PROTECTION NOT TO SCALE

P5042

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STATE OF NEW HAMPSHIRE – ERIC D. WEINRIEB No. 7634 (LICENSED) PROFESSIONAL ENGINEER

6/21/21

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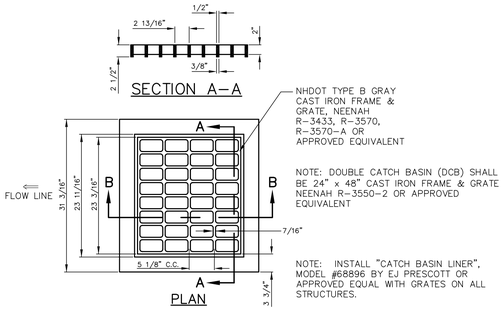
EXETER, NH 03833

PROJECT:
64 VAUGHAN MALL BUILDING RESTORATION
TAX MAP 126, LOT 1
64 VAUGHAN MALL
PORTSMOUTH, NH 03801

TITLE:
DETAIL SHEET

SHEET NUMBER:
D-1



NHDOT TYPE B GRAY CAST IRON FRAME & GRATE, NEENAH R-3433, R-3570, R-3570-A OR APPROVED EQUIVALENT

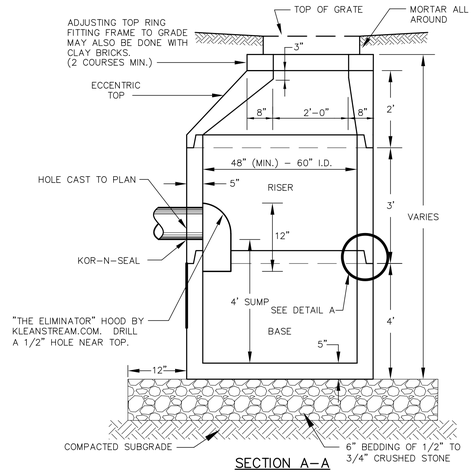
NOTE: DOUBLE CATCH BASIN (DCB) SHALL BE 24" x 48" CAST IRON FRAME & GRATE NEENAH R-3550-2 OR APPROVED EQUIVALENT

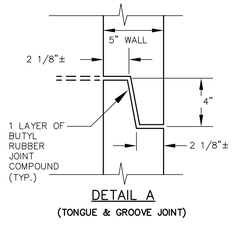
NOTE: INSTALL "CATCH BASIN LINER", MODEL #68896 BY EJ PRESCOTT OR APPROVED EQUAL WITH GRATES ON ALL STRUCTURES.

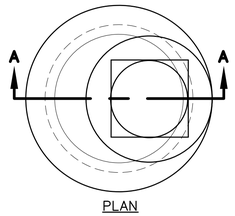
CAST IRON FRAME (3 OR 4 FLANGE DEPENDING ON LOCATION)

SQUARE FRAME BLOCKS

GRATE & FRAME DETAIL





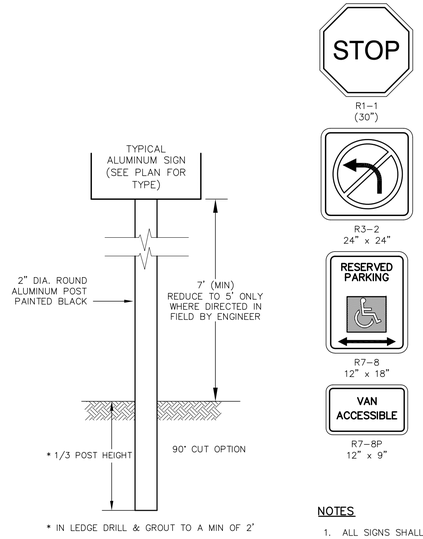


NOTES

1. ALL SECTIONS SHALL BE CONCRETE CLASS AA (4000 PSI).
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ.IN. PER LINEAR FT. IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE OR GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FT.
4. RISERS OF 1', 2', 3' & 4' CAN BE USED TO REACH DESIRED DEPTH.
5. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
6. USE H20 LOADING SLAB TOP SECTION IN LIEU OF ECCENTRIC TOP WHERE PIPE INVERT IS WITHIN 4' OF FINISH GRADE.
7. FRAME AND GRATE DIMENSIONS ARE TYPICAL BUT MAY VARY BASED ON PRODUCT SELECTED OR EQUIVALENT APPROVED BY THE ENGINEER.

DEEP SUMP CATCH BASIN

NOT TO SCALE

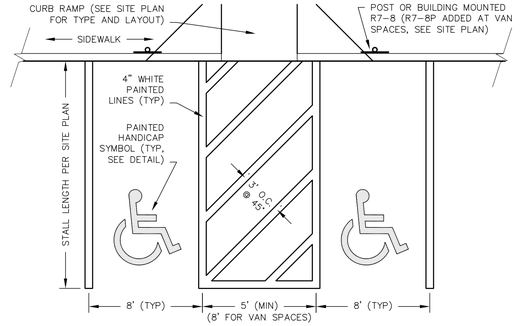


NOTES

1. ALL SIGNS SHALL MEET THE REQUIREMENTS OF AND BE INSTALLED AS INDICATED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.

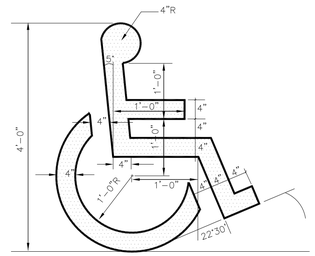
SIGN DETAILS

NOT TO SCALE



HANDICAP PARKING STALL LAYOUT

NOT TO SCALE

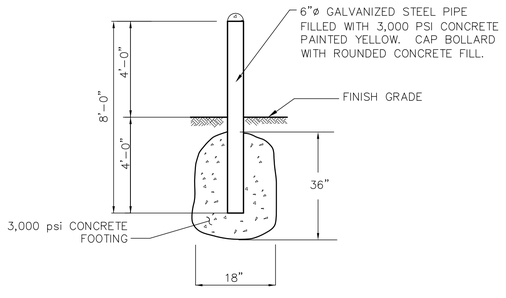


NOTES

1. SYMBOL TO BE PAINTED IN ALL HANDICAPPED ACCESSIBLE SPACES IN WHITE PAINT (BLUE-PAINTED SQUARE BACKGROUND OPTIONAL).

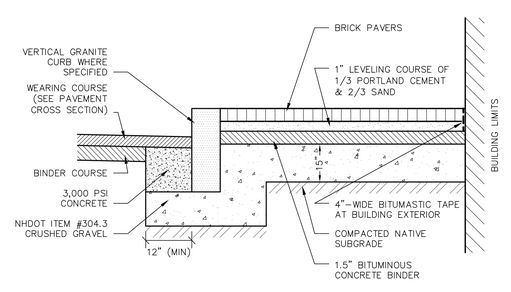
PAINTED HANDICAP SYMBOL

NOT TO SCALE



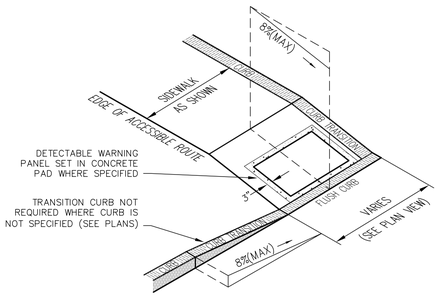
BOLLARD

NOT TO SCALE



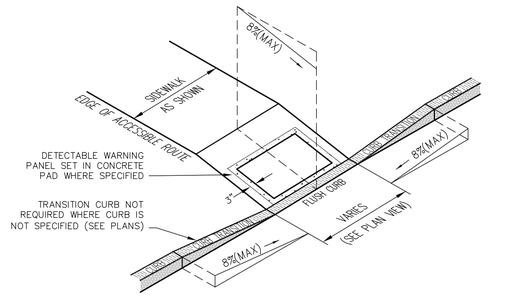
BRICK / PAVER INSTALLATION

NOT TO SCALE



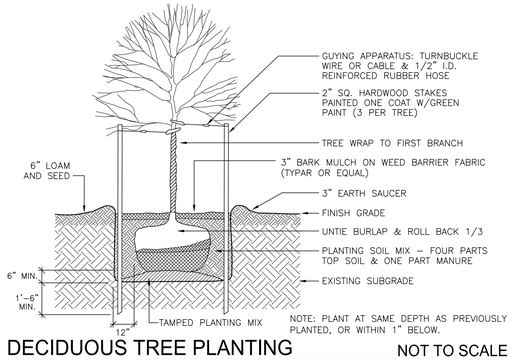
CURB RAMP (TYPE 'E')

NOT TO SCALE



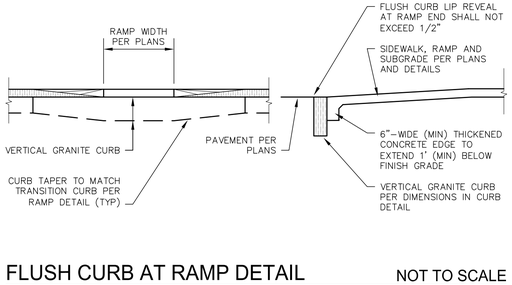
CURB RAMP (TYPE 'F')

NOT TO SCALE



DECIDUOUS TREE PLANTING

NOT TO SCALE



FLUSH CURB AT RAMP DETAIL

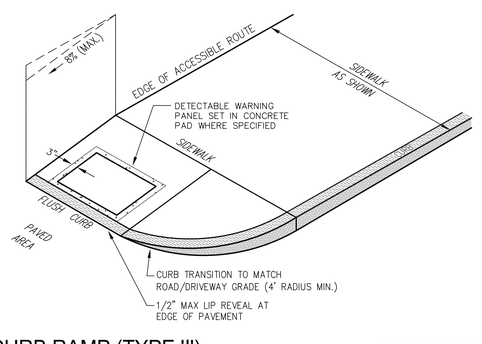
NOT TO SCALE

NOTES APPLICABLE TO ALL CURB RAMPS AND SIDEWALKS:

1. THE MAXIMUM ALLOWABLE CROSS SLOPE OF AN ACCESSIBLE ROUTE (SIDEWALK) AND CURB SHALL BE 1.5%.
2. THE MAXIMUM ALLOWABLE SLOPE OF AN ACCESSIBLE ROUTE EXCLUDING CURB RAMPS SHALL BE 5%.
3. THE MAXIMUM ALLOWABLE SLOPE OF AN ACCESSIBLE ROUTE (SIDEWALK) CURB RAMP SHALL BE 8%.
4. CURB TREATMENT VARIES, SEE PLANS FOR CURB TYPE.
5. BASE OF RAMP SHALL BE GRADED TO PREVENT THE PONDING OF WATER.
6. SEE TYPICAL SIDEWALK SECTION FOR RAMP CONSTRUCTION.
7. ALL CURB RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH AMERICANS WITH DISABILITIES ACT (ADA) AND ALL APPLICABLE CODES.
8. FLUSH CURB SECTIONS SHALL HAVE A MAXIMUM LIP REVEAL OF 1/2" AT THE EDGE OF PAVEMENT.
9. EDGES OF SIDEWALK FOOTINGS ALONG FLUSH CURBS SHALL BE HAUNCHED SO AS TO EXTEND TO A MINIMUM DEPTH OF 1' BELOW FINISH GRADE.
10. NO RAMP SHALL BE LESS THAN 4' IN WIDTH.

CURB RAMP & SIDEWALK NOTES

NOT TO SCALE



CURB RAMP (TYPE 'I')

NOT TO SCALE

P5042

ALTUS ENGINEERING, INC.
133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

ERIC D. WEINRIEB No. 7634 (LICENSED) – STATE OF NEW HAMPSHIRE – PROFESSIONAL ENGINEER

6/21/21

NOT FOR CONSTRUCTION

ISSUED FOR: TAC

ISSUE DATE: JUNE 21, 2021

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	TAC WORK SESSION	EBS	05/05/20
1	TAC	EBS	10/19/20
2	TAC	EBS	03/22/21
3	TAC	EBS	05/19/21
4	TAC	EBS	06/21/21

DRAWN BY: EBS

APPROVED BY: EDW

DRAWING FILE: 5042-SITE.dwg

SCALE: 22"x34" 1" = 20'
11"x17" 1" = 40'

OWNER:

64 VAUGHAN MALL, LLC

41 INDUSTRIAL DRIVE
EXETER, NH 03833

APPLICANT:

HAMPSHIRE DEVELOPMENT CORP.

41 INDUSTRIAL DRIVE
EXETER, NH 03833

PROJECT:

64 VAUGHAN MALL BUILDING RESTORATION

TAX MAP 126, LOT 1

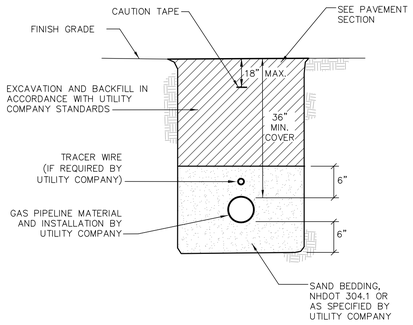
64 VAUGHAN MALL
PORTSMOUTH, NH 03801

TITLE:

DETAIL SHEET

SHEET NUMBER:

D-2



SAND BLANKET/BARRIER

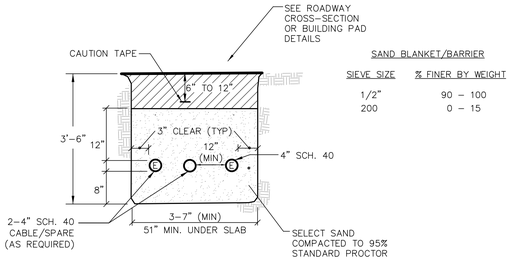
SIEVE SIZE	% FINER BY WEIGHT
1/2"	90 – 100
200	0 – 15

NOTES

1. CONTRACTOR TO COORDINATE WITH UTILITY COMPANY AND PROVIDE ALL EXCAVATION, COMPACTION AND BACKFILL FOR PIPE INSTALLATION WITHIN THE PROJECT SITE.
2. BACKFILL MATERIAL BELOW PAVED OR CONCRETE AREAS, BEDDING MATERIAL, AND SAND BLANKET SHALL BE COMPACTED TO NOT LESS THAN 95% OF AASHTO T 99, METHOD C. SUITABLE BACKFILL MATERIAL BELOW LOAM AREAS SHALL BE COMPACTED TO NOT LESS THAN 90% OF AASHTO T 99, METHOD C.

GAS TRENCH

NOT TO SCALE



SAND BLANKET/BARRIER

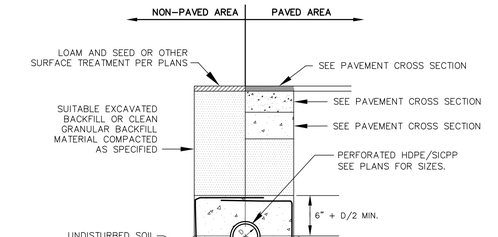
SIEVE SIZE	% FINER BY WEIGHT
1/2"	90 – 100
200	0 – 15

NOTES

1. ALL CONDUIT IS TO BE SCHEDULE 40 PVC, ELECTRICAL GRADE, GRAY IN COLOR AND INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS. A 10-FOOT HORIZONTAL SECTION OF RIGID GALVANIZED STEEL CONDUIT WILL BE REQUIRED AT EACH SWEEP, UNLESS IN THE OPINION OF THE SERVICE PROVIDER DESIGNER, THE SWEEP-PVC JOINT IS NOT SUBJECT TO FAILURE DURING PULLING OF THE CABLE. ALL JOINTS ARE TO BE WATERTIGHT.
2. ALL 90 DEGREE SWEEPS WILL BE MADE WITH RIGID GALVANIZED STEEL WITH A MINIMUM RADIUS OF 36 INCHES FOR PRIMARY CABLES AND 24 INCHES FOR SECONDARY CABLES.
3. BACKFILL MAY BE MADE WITH EXCAVATED MATERIAL OR COMPARABLE, UNLESS MATERIAL IS DEEMED UNSUITABLE BY SERVICE PROVIDER. BACKFILL SHALL BE FREE OF FROZEN LUMPS, ROCKS, DEBRIS, AND RUBBISH. ORGANIC MATERIAL SHALL NOT BE USED AS BACKFILL. BACKFILL SHALL BE IN 6-INCH LAYERS AND THOROUGHLY COMPACTED.
4. A SUITABLE PULLING STRING, CAPABLE OF 300 POUNDS OF PULL, MUST BE INSTALLED IN THE CONDUIT BEFORE SERVICE PROVIDER IS NOTIFIED TO INSTALL CABLE. THE STRING SHOULD BE BLOWN INTO THE CONDUIT AFTER THE RUN IS ASSEMBLED TO AVOID BONDING THE STRING TO THE CONDUIT. A MINIMUM OF TWENTY-FOUR (24") INCHES OF ROPE SLACK SHALL REMAIN AT THE END OF EACH DUCT. PULL ROPE SHALL BE INSTALLED IN ALL CONDUIT FOR FUTURE PULLS. PULL ROPE SHALL BE NYLON ROPE HAVING A MINIMUM TENSILE STRENGTH OF THREE HUNDRED (300#) LBS.
5. SERVICE PROVIDER SHALL BE GIVEN THE OPPORTUNITY TO INSPECT ALL CONDUIT PRIOR TO BACKFILL. THE CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS SHOULD SERVICE PROVIDER BE UNABLE TO INSTALL ITS CABLE IN A SUITABLE MANNER.
6. TYPICAL CONDUIT SIZES ARE 3-INCH FOR SINGLE PHASE PRIMARY AND SECONDARY VOLTAGE CABLES, 4-INCH FOR THREE PHASE SECONDARY, AND 5-INCH FOR THREE PHASE PRIMARY. HOWEVER, SERVICE PROVIDERS MAY REQUIRE DIFFERENT NUMBERS, TYPES AND SIZES OF CONDUIT THAN THOSE SHOWN HERE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL CONDUIT SIZES, TYPES AND NUMBERS WITH EACH SERVICE PROVIDER PRIOR TO ORDERING THEM.
7. ROUTING OF CONDUIT, LOCATION OF MANHOLES, TRANSFORMERS, CABINETS, HANDHOLES, ETC., SHALL BE DETERMINED BY SERVICE PROVIDER DESIGN PERSONNEL. THE CONTRACTOR SHALL COORDINATE WITH ALL SERVICE PROVIDERS PRIOR TO THE INSTALLATION OF ANY CONDUIT.
8. ALL CONDUIT INSTALLATIONS MUST CONFORM TO THE CURRENT EDITION OF THE NATIONAL ELECTRIC SAFETY CODE, STATE AND LOCAL CODES AND ORDINANCES, AND WHERE APPLICABLE, THE NATIONAL ELECTRIC CODE. WHERE REQUIRED BY UTILITY PROVIDER, CONDUIT SHALL BE SUPPORTED IN PLACE USING PIPE STANCHIONS PLACED EVERY FIVE (5') FEET ALONG THE CONDUIT RUN.
9. UNDER A BUILDING SLAB THE CONDUIT SHALL BE ENCASED IN 8" OF CONCRETE ON ALL SIDES.
10. ALL CONDUIT TERMINATIONS SHALL BE CAPPED TO PREVENT DEBRIS FROM ENTERING CONDUIT.

ELECTRIC / COMMUNICATION TRENCH

NOT TO SCALE



BACKFILL MATERIAL BELOW PAVED OR CONCRETE AREAS, BEDDING MATERIAL, AND SAND BLANKET SHALL BE COMPACTED TO NOT LESS THAN 95% OF AASHTO T 99, METHOD C. SUITABLE BACKFILL MATERIAL BELOW LOAM AREAS SHALL BE COMPACTED TO NOT LESS THAN 90% OF AASHTO T 99, METHOD C.

SAND BLANKET/BARRIER

SIEVE SIZE	% FINER BY WEIGHT
1/2"	90 – 100
200	0 – 15

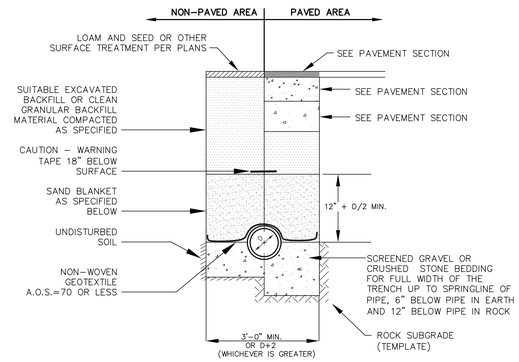
SCREENED GRAVEL OR CRUSHED STONE BEDDING*

SIEVE SIZE	% PASSING BY WEIGHT
1"	100
3/4"	90 – 100
3/8"	20 – 55
# 4	0 – 10
# 8	0 – 5

* EQUIVALENT TO STANDARD STONE SIZE #67 – SECTION 703 OF NHDOT STANDARD SPECIFICATIONS

UNDERDRAIN TRENCH SECTION

NOT TO SCALE



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SAND BLANKET/BARRIER

SIEVE SIZE	% FINER BY WEIGHT
1/2"	90 – 100
200	0 – 15

SCREENED GRAVEL OR CRUSHED STONE BEDDING*

SIEVE SIZE	% PASSING BY WEIGHT
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# 4	0 – 10
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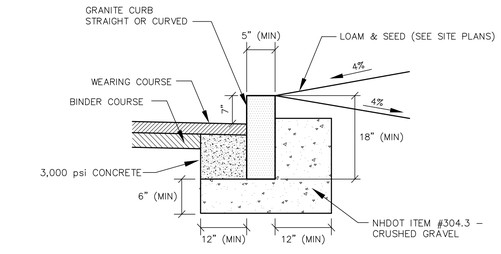
* EQUIVALENT TO STANDARD STONE SIZE #67 – SECTION 703 OF NHDOT STANDARD SPECIFICATIONS

DRAINAGE TRENCH SECTION

NOT TO SCALE

PAVEMENT CROSS SECTION

NOT TO SCALE



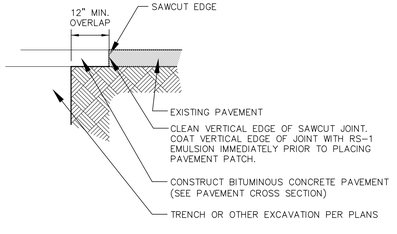
NOTES

1. SEE PLANS FOR CURB LOCATION.
2. SEE PLANS FOR PAVEMENT CROSS SECTION.
3. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
4. MINIMUM LENGTH OF CURB STONES = 4'.
5. MAXIMUM LENGTH OF CURB STONES = 10'.
6. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES – SEE CHART.
7. CURB ENDS TO ROUNDED AND BATTERED FACES TO BE CUT WHEN CALLED FOR ON THE PLANS.
8. CURB SHALL BE INSTALLED PRIOR TO PLACEMENT OF TOP PAVEMENT COURSE.
9. JOINTS BETWEEN CURB STONES SHALL BE MORTARED.

RADIUS	MAX. LENGTH
21'	3'
22'–28'	4'
29'–35'	5'
36'–42'	6'
43'–49'	7'
50'–56'	8'
57'–60'	9'
OVER 60'	10'

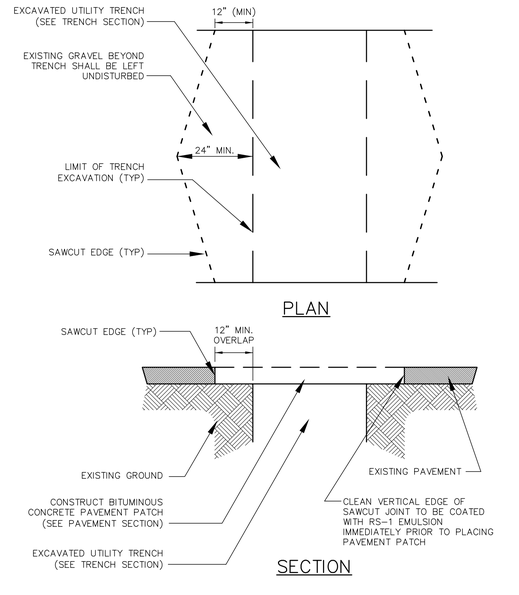
VERTICAL GRANITE CURB

NOT TO SCALE



TYPICAL PAVEMENT SAWCUT

NOT TO SCALE



NOTES

1. MACHINE CUT EXISTING PAVEMENT.
2. ALL TEMPORARY, DAMAGED OR DEFECTIVE PAVEMENT SHALL BE REMOVED PRIOR TO PLACEMENT OF PERMANENT TRENCH REPAIRS.
3. DIAMOND PATCHES, SHALL BE REQUIRED FOR ALL TRENCHES CROSSING ROADWAY. DIAMOND PATCHES SHALL MEET NHDOT REQUIREMENTS.

TYPICAL TRENCH PATCH

NOT TO SCALE

P5042

ALTUS ENGINEERING, INC.
133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

ERIC D. WEINRIEB No. 7634 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE
3/22/21

NOT FOR CONSTRUCTION

ISSUED FOR: TAC

ISSUE DATE: MARCH 22, 2021

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	TAC WORK SESSION	EBS	05/05/20
1	TAC	EBS	10/19/20
2	TAC	EBS	03/22/21

DRAWN BY: EBS
APPROVED BY: EDW
DRAWING FILE: 5042-SITE.dwg

SCALE: 22"x34" 1" = 20'
11"x17" 1" = 40'

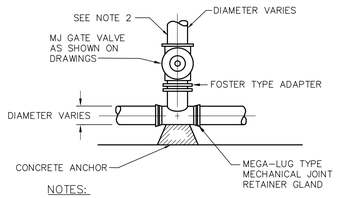
OWNER:
64 VAUGHAN MALL, LLC
41 INDUSTRIAL DRIVE
EXETER, NH 03833

APPLICANT:
HAMPSHIRE DEVELOPMENT CORP.
41 INDUSTRIAL DRIVE
EXETER, NH 03833

PROJECT:
64 VAUGHAN MALL BUILDING RESTORATION
TAX MAP 126, LOT 1
64 VAUGHAN MALL
PORTSMOUTH, NH 03801

TITLE:
DETAIL SHEET

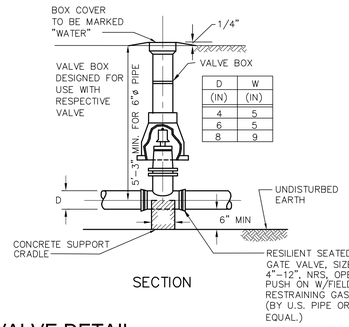
SHEET NUMBER:
D-3



NOTES:

1. GATE VALVES SHALL OPEN RIGHT, PER CITY STANDARDS.
2. BRANCH PIPING SHALL BE MECHANICALLY RESTRAINED AS NOTED UNDER THRUST BLOCK DETAIL REQUIREMENTS.

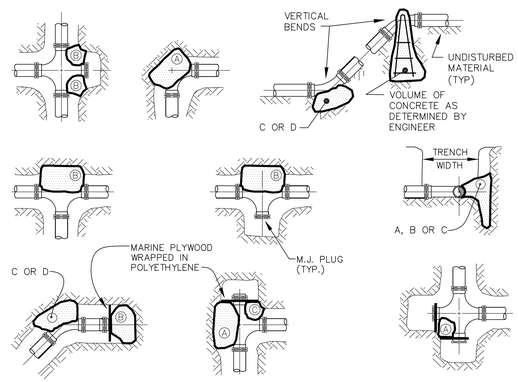
TEE & GATE VALVE ASSEMBLY DETAIL NOT TO SCALE



D (IN)	W (IN)
4	5
6	5
8	9

SECTION

WATER VALVE DETAIL NOT TO SCALE

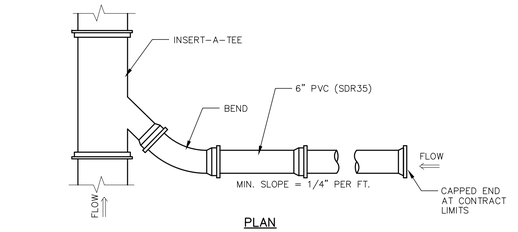


TEST PRESSURE = 150 psi	SQUARE FEET OF CONCRETE THRUST BLOCKING BEARING ON UNDISTURBED MATERIAL					
	REACTION TYPE	PIPE SIZE				
		4"	6"	8"	10"	12"
	A 90°	0.89	2.19	3.82	11.14	17.24
	B 180°	0.65	1.55	2.78	8.38	12.00
	C 45°	0.48	1.19	2.12	6.02	9.32
	D 22-1/2°	0.25	0.60	1.06	3.08	4.74
	E 11-1/4°	0.13	0.30	0.54	1.54	2.38

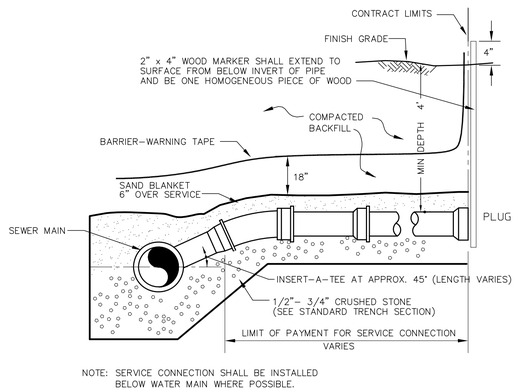
NOTES

1. POUR THRUST BLOCKS AGAINST UNDISTURBED MATERIAL. WHERE TRENCH WALL HAS BEEN DISTURBED, EXCAVATE LOOSE MATERIAL AND EXTEND THRUST BLOCK TO UNDISTURBED MATERIAL.
2. NO JOINTS SHALL BE COVERED WITH CONCRETE. POLYETHYLENE (6 MIL) SHALL BE PLACED AROUND FITTINGS PRIOR TO CONCRETE PLACEMENT.
3. ON BENDS AND TEES, EXTEND THRUST BLOCKS FULL LENGTH OF FITTING.
4. PLACE BOARD IN FRONT OF ALL PLUGS BEFORE POURING THRUST BLOCKS. WHERE M.J. PIPE IS USED, M.J. PLUG WITH RETAINER GLAND MAY BE SUBSTITUTED FOR END BLOCKINGS.
5. X
6. POLYETHYLENE (6 MIL) SHALL BE PLACED AROUND ALL FITTINGS PRIOR TO CONCRETE PLACEMENT.

THRUST BLOCKING NOT TO SCALE



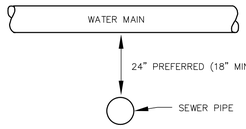
PLAN



NOTE: SERVICE CONNECTION SHALL BE INSTALLED BELOW WATER MAIN WHERE POSSIBLE.

ELEVATION

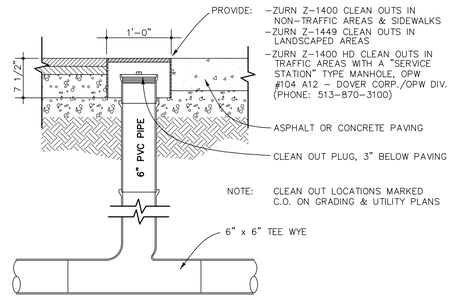
SEWER SERVICE CONNECTION NOT TO SCALE



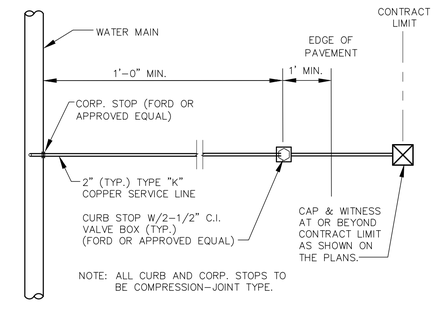
NOTES

1. A MINIMUM HORIZONTAL DISTANCE OF 10 FEET SHALL BE MAINTAINED BETWEEN WATER AND SEWER MAINS. A MINIMUM VERTICAL DISTANCE WITH WATER ABOVE SEWER SHALL BE MAINTAINED.
2. SEWER PIPE JOINTS SHALL BE LOCATED A MINIMUM OF 6 FEET HORIZONTALLY FROM WATER MAIN.
3. IF THE REQUIRED CONFIGURATION CANNOT BE MET, THE SEWER MAIN SHALL BE CONSTRUCTED TO MEET THE NHDES REQUIREMENTS FOR FORCE MAIN CONSTRUCTION.

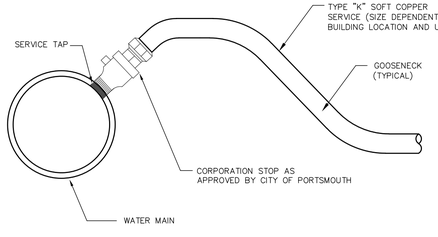
WATER MAIN / SEWER CROSSING NOT TO SCALE



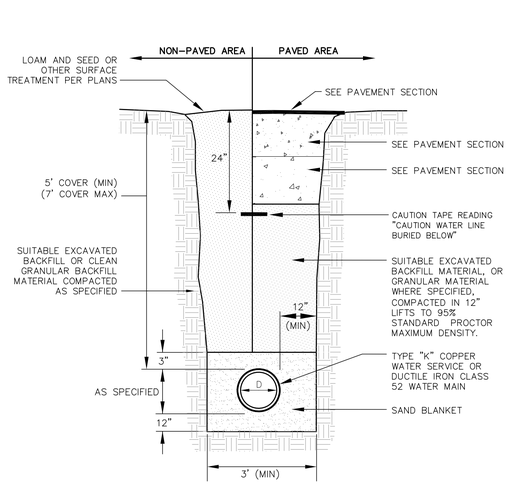
SEWER CLEANOUT NOT TO SCALE



NOTE: ALL MATERIALS AND SPECIFICATIONS SHALL CONFORM TO CITY OF PORTSMOUTH WATER DEPARTMENT STANDARDS AND REQUIREMENTS. VERIFY PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES.



WATER SERVICE CONNECTION NOT TO SCALE



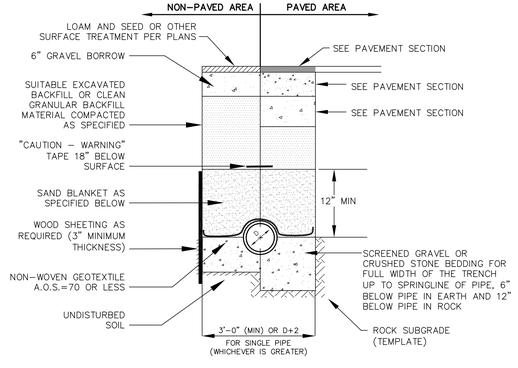
SAND BLANKET/BARRIER

SIEVE SIZE	% FINER BY WEIGHT
1/2"	90 - 100
200	0 - 15

NOTES

1. BACKFILL MATERIAL BELOW PAVED OR CONCRETE AREAS, BEDDING MATERIAL, AND SAND BLANKET SHALL BE COMPACTED TO NOT LESS THAN 95% OF AASHTO T 99, METHOD C. SUITABLE BACKFILL MATERIAL BELOW LOAM AREAS SHALL BE COMPACTED TO NOT LESS THAN 90% OF AASHTO T 99, METHOD C.

WATER MAIN TRENCH NOT TO SCALE



NOTES

1. BACKFILL MATERIAL BELOW PAVED OR CONCRETE AREAS, BEDDING MATERIAL, AND SAND BLANKET SHALL BE COMPACTED TO NOT LESS THAN 95% OF AASHTO T 99, METHOD C. SUITABLE BACKFILL MATERIAL BELOW LOAM AREAS SHALL BE COMPACTED TO NOT LESS THAN 90% OF AASHTO T 99, METHOD C.
2. INSULATE GRAVITY SEWER AND FORCEMAINS WHERE THERE IS LESS THAN 5'-0" OF COVER WITH 2" THICK CLOSED CELL RIGID BOARD INSULATION, 18" ON EACH SIDE OF PIPE.
3. MAINTAIN 12" MINIMUM HORIZONTAL SEPARATION AND WIDEN TRENCH ACCORDINGLY IF MULTIPLE PIPES ARE IN TRENCH.

SAND BLANKET/BARRIER

SIEVE SIZE	% FINER BY WEIGHT
1/2"	90 - 100
200	0 - 15

SCREENED GRAVEL OR CRUSHED STONE BEDDING*

SIEVE SIZE	% PASSING BY WEIGHT
1"	100
3/4"	90 - 100
3/8"	20 - 55
# 4	0 - 10
# 8	0 - 5

* EQUIVALENT TO STANDARD STONE SIZE #67 - SECTION 703 OF NHDOT STANDARD SPECIFICATIONS

SEWER & FORCEMAIN TRENCH NOT TO SCALE

STANDARD TRENCH NOTES

1. ORDERED EXCAVATION OF UNSUITABLE MATERIAL BELOW GRADE: BACKFILL AS STATED IN THE TECHNICAL SPECIFICATIONS OR AS SHOWN ON THE DRAWING.
2. BEDDING: SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING THE GRADATION SHOWN IN THE TRENCH DETAIL. WHERE ORDERED BY THE ENGINEER TO STABILIZE THE BASE, SCREENED GRAVEL OR CRUSHED STONE 1-1/2 INCH TO 1/2 INCH SHALL BE USED.
3. SAND BLANKET: CLEAN SAND FREE FROM ORGANIC MATTER MEETING THE GRADATION SHOWN IN THE TRENCH DETAIL. BLANKET MAY BE REPLACED WITH BEDDING MATERIAL FOR CAST-IRON, DUCTILE IRON, AND REINFORCED CONCRETE PIPE PROVIDED THAT NO STONE LARGER THAN 2" IS IN CONTACT WITH THE PIPE AND THE GEOTEXTILE IS RELOCATED ACCORDINGLY.
4. SUITABLE MATERIAL: IN ROADS, ROAD SHOULDERS, WALKWAYS AND TRAVELED WAYS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING THE COURSE OF CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, ALL WET OR SOFT MUCK, PEAT, OR CLAY, ALL EXCAVATED LEDGE MATERIAL, ALL ROCKS OVER 6 INCHES IN LARGEST DIMENSION, AND ANY MATERIAL WHICH, AS DETERMINED BY THE ENGINEER, WILL NOT PROVIDE SUFFICIENT SUPPORT OR MAINTAIN THE COMPLETED CONSTRUCTION IN A STABLE CONDITION. IN CROSS COUNTRY CONSTRUCTION, SUITABLE MATERIAL SHALL BE AS DESCRIBED ABOVE, EXCEPT THAT THE ENGINEER MAY PERMIT THE USE OF TOP SOIL, LOAM, MUCK, OR PEAT, IF SATISFIED THAT THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE AND PROVIDED THAT EASY ACCESS TO THE SEWER FOR MAINTENANCE AND POSSIBLE RECONSTRUCTION WILL BE PRESERVED.
5. BASE COURSE AND PAVEMENT SHALL MEET THE REQUIREMENTS OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION'S LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES - DIVISIONS 300 AND 400 RESPECTIVELY.
6. SHEETING, IF REQUIRED: WHERE SHEETING IS PLACED ALONGSIDE THE PIPE AND EXTENDS BELOW MID-DIAMETER, IT SHALL BE CUT OFF AND LEFT IN PLACE TO AN ELEVATION 1 FOOT ABOVE THE TOP OF PIPE. WHERE SHEETING IS ORDERED BY THE ENGINEER TO BE LEFT IN PLACE, IT SHALL BE CUT OFF AT LEAST 3 FEET BELOW FINISHED GRADE, BUT NOT LESS THAT 1 FOOT ABOVE THE TOP OF THE PIPE.
7. W = MAXIMUM ALLOWABLE TRENCH WIDTH TO A PLANE 12 INCHES ABOVE THE PIPE. FOR PIPES 15 INCHES NOMINAL DIAMETER OR LESS, W SHALL BE NO MORE THAN 36 INCHES. FOR PIPES GREATER THAN 15 INCHES IN NOMINAL DIAMETER, W SHALL BE 24 INCHES PLUS PIPE OUTSIDE DIAMETER (O.D.) ALSO, W SHALL BE THE PAYMENT WIDTH FOR LEDGE EXCAVATION AND FOR ORDERED EXCAVATION BELOW GRADE.
8. FOR CROSS COUNTRY CONSTRUCTION, BACKFILL, FILL AND/OR LOAM SHALL BE MOUNDED TO A HEIGHT OF 6 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
9. CONCRETE FOR ENCASEMENT SHALL CONFORM TO THE NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS STANDARD SPECIFICATION REQUIREMENTS FOR CLASS A (3000#)
   CONCRETE AS FOLLOWS:
   CEMENT: 6.0 BAGS PER CUBIC YARD
   WATER: 5.75 GALLONS PER BAG
   CEMENT MAXIMUM SIZE OF AGGREGATE: 1 INCH
   CONCRETE ENCASEMENT IS NOT ALLOWED FOR PVC PIPE.
10. CONCRETE FULL ENCASEMENT: IF FULL ENCASEMENT IS UTILIZED, DEPTH OF CONCRETE BELOW PIPE SHALL BE 1/4 I.D. (4" MINIMUM). BLOCK SUPPORT SHALL BE SOLID CONCRETE BLOCKS.
11. NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES DESIGN STANDARDS REQUIRE TEN FEET (10') SEPARATION BETWEEN WATER AND SEWER. REFER TO TOWN'S STANDARD SPECIFICATIONS FOR METHODS OF PROTECTION IN AREAS THAT CANNOT MEET THESE REQUIREMENTS.

P5042

ALTUS ENGINEERING, INC.
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(603) 433-2335 www.altus-eng.com

ERIC D. WEINRIEB No. 7634 LICENSED PROFESSIONAL ENGINEER - STATE OF NEW HAMPSHIRE
3/22/21

NOT FOR CONSTRUCTION

ISSUED FOR: TAC

ISSUE DATE: MARCH 22, 2021

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	TAC WORK SESSION	EBS	05/05/20
1	TAC	EBS	10/19/20
2	TAC	EBS	03/22/21

DRAWN BY: EBS
APPROVED BY: EDW
DRAWING FILE: 5042-SITE.dwg

SCALE: 22"x34" 1" = 20'
11"x17" 1" = 40'

OWNER:
64 VAUGHAN MALL, LLC
41 INDUSTRIAL DRIVE
EXETER, NH 03833

APPLICANT:
HAMPSHIRE DEVELOPMENT CORP.
41 INDUSTRIAL DRIVE
EXETER, NH 03833

PROJECT:
64 VAUGHAN MALL BUILDING RESTORATION
TAX MAP 126, LOT 1
64 VAUGHAN MALL
PORTSMOUTH, NH 03801

TITLE:
DETAIL SHEET

SHEET NUMBER:
D-4

1 **SOUTH ELEVATION**
1/16" = 1'-0"

2 **EAST ELEVATION**
1/16" = 1'-0"

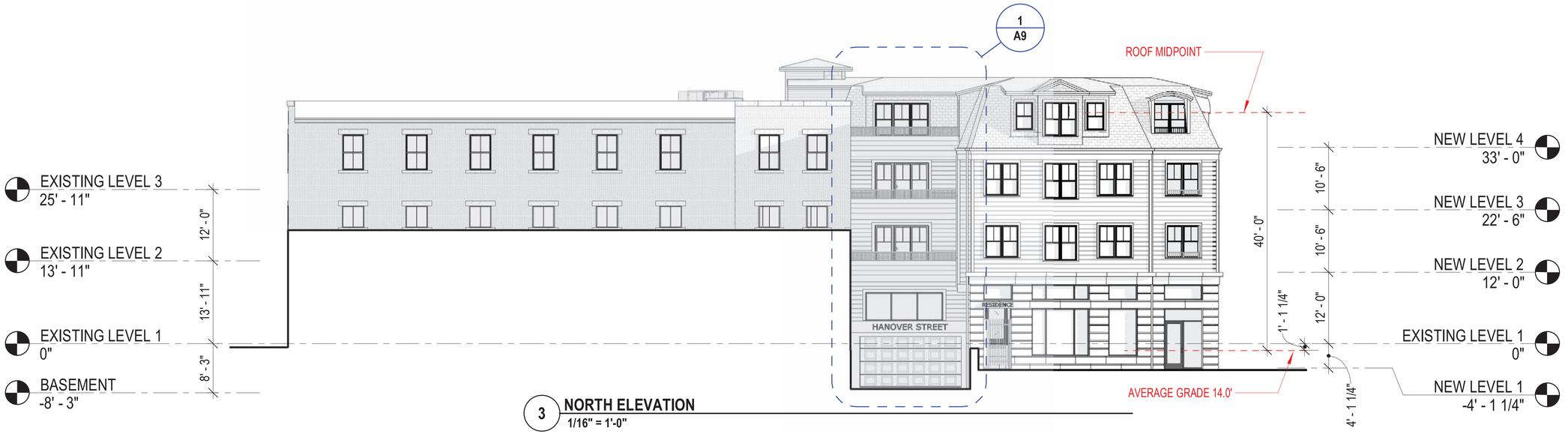
A3

EXTERIOR ELEVATIONS

64 Vaughan Mall

06/16/2021
SCALE: 1/16" = 1'-0"

JSA
ARCHITECTS
INTERIORS
PLANNERS



3 **NORTH ELEVATION**
1/16" = 1'-0"

4 **WEST ELEVATION**
1/16" = 1'-0"

A4 EXTERIOR ELEVATIONS

64 Vaughan Mall

06/16/2021
SCALE: 1/16" = 1'-0"

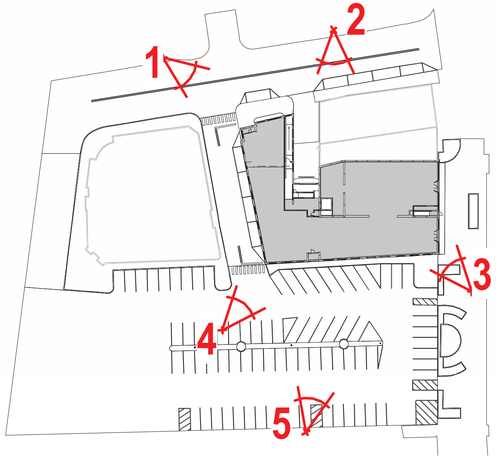
JSA
ARCHITECTS
INTERIORS
PLANNERS

2 VIEW 02

3 VIEW 03

4 VIEW 04

1 VIEW 01



P LEVEL 1 - PERSPECTIVE PLAN
1" = 100'-0"

5 VIEW 05

A5

PERSPECTIVE VIEWS
64 Vaughan Mall

06/16/2021
SCALE: 1" = 100'-0"

JSA
ARCHITECTS
INTERIORS
PLANNERS

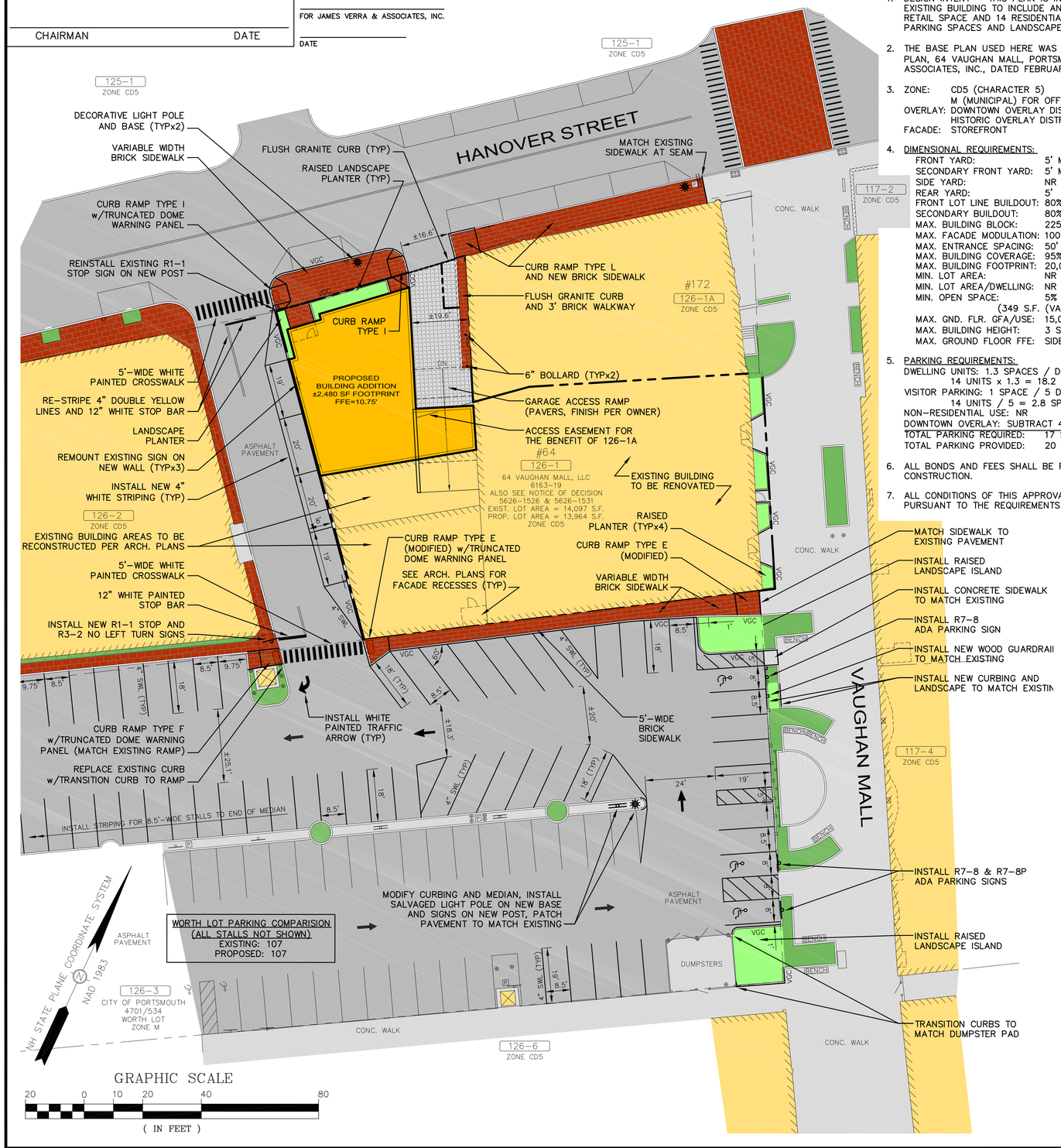
APPROVED BY THE PORTSMOUTH PLANNING BOARD

CHAIRMAN DATE

THE SOLE PURPOSE OF THIS PLAN IS TO DEPICT THE LOCATION OF EXISTING AND PROPOSED IMPROVEMENTS ON THE SITE. RECORDING OF THIS PLAN WAS A REQUIREMENT OF THE PORTSMOUTH PLANNING BOARD AS PART OF THEIR APPROVAL.

FOR JAMES VERRA & ASSOCIATES, INC.

DATE



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)

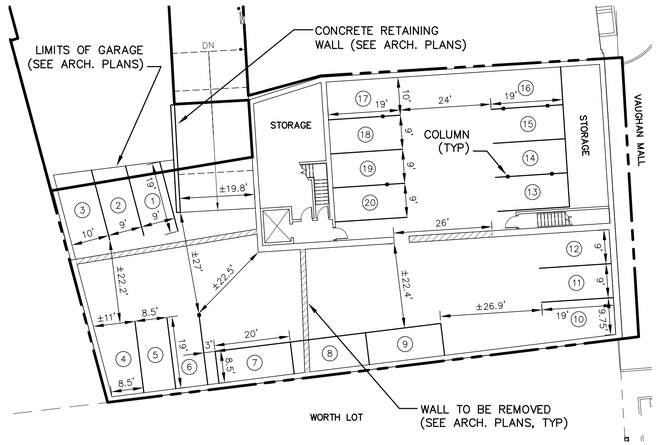
NOTES

1. DESIGN INTENT – THIS PLAN IS INTENDED TO DEPICT THE RETROFIT OF THE EXISTING BUILDING TO INCLUDE AN ADDITION, UNDERGROUND PARKING GARAGE, RETAIL SPACE AND 14 RESIDENTIAL UNITS ALONG WITH A SIDEWALK, MODIFIED PARKING SPACES AND LANDSCAPE ISLANDS ON THE ABUTTING WORTH LOT.
2. THE BASE PLAN USED HERE WAS DEVELOPED FROM "EXISTING CONDITIONS PLAN, 64 VAUGHAN MALL, PORTSMOUTH, NH" BY JAMES VERRA AND ASSOCIATES, INC., DATED FEBRUARY 3, 2020.
3. ZONE: CD5 (CHARACTER 5)
   M (MUNICIPAL) FOR OFFSITE IMPROVEMENTS ON WORTH LOT
   OVERLAY: DOWNTOWN OVERLAY DISTRICT
   HISTORIC OVERLAY DISTRICT
   FACADE: STOREFRONT
4. DIMENSIONAL REQUIREMENTS:

		EXISTING	PROPOSED
FRONT YARD:	5' MAX.	4.3'	SAME
SECONDARY FRONT YARD:	5' MAX.	58.1'	5'
SIDE YARD:	NR	0'	SAME
REAR YARD:	5'	0.15'	SAME
FRONT LOT LINE BUILDOUT:	80% WIDTH MIN.	100%	SAME
SECONDARY BUILDOUT:	80% WIDTH MIN.	0%	80% (47')
MAX. BUILDING BLOCK:	225'		
MAX. FACADE MODULATION:	100'		
MAX. ENTRANCE SPACING:	50'		
MAX. BUILDING COVERAGE:	95%	70.0%	89.4%
MAX. BUILDING FOOTPRINT:	20,000 S.F.	10,008 S.F.	12,488 S.F.
MIN. LOT AREA:	NR	14,097 S.F.	13,964 S.F.
MIN. LOT AREA/DWELLING:	NR		
MIN. OPEN SPACE:	5%	0% (0 SF)	5% (698 SF)
		(349 S.F. (VAUGHAN) + 349 S.F. (HANOVER) = 698 S.F.)	
MAX. GND. FLR. GFA/USE:	15,000 S.F.	±10,014 S.F.	12,476 S.F.
MAX. BUILDING HEIGHT:	3 STORIES or 40'	±40'	40'
MAX. GROUND FLOOR FFE:	SIDEWALK GRADE +3'		

5. PARKING REQUIREMENTS:
   DWELLING UNITS: 1.3 SPACES / DWELLING UNIT OVER 750 S.F.
   14 UNITS x 1.3 = 18.2 SPACES REQUIRED
   VISITOR PARKING: 1 SPACE / 5 DWELLING UNITS (FOR LOT w/OVER 4 UNITS)
   14 UNITS / 5 = 2.8 SPACES REQUIRED
   NON-RESIDENTIAL USE: NR
   DOWNTOWN OVERLAY: SUBTRACT 4 SPACES/LOT
   TOTAL PARKING REQUIRED: 17 SPACES
   TOTAL PARKING PROVIDED: 20 SPACES (UNDERGROUND)
6. ALL BONDS AND FEES SHALL BE PAID/POSTED PRIOR TO INITIATING CONSTRUCTION.
7. ALL CONDITIONS OF THIS APPROVAL SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS.
8. ALL CONSTRUCTION SHALL MEET THE MINIMUM CONSTRUCTION STANDARDS OF THE CITY OF PORTSMOUTH & NHDOT'S STANDARD SPECIFICATIONS FOR ROAD & BRIDGE, LATEST EDITION. THE MORE STRINGENT SPECIFICATION SHALL GOVERN.
9. CLEAN AND COAT VERTICAL FACE OF EXISTING PAVEMENT AT SAWCUT LINE WITH RS-1 IMMEDIATELY PRIOR TO PLACING NEW BITUMINOUS CONCRETE.
10. THE CONTRACTOR SHALL VERIFY ALL BENCHMARKS AND TOPOGRAPHY IN THE FIELD PRIOR TO CONSTRUCTION.
11. AREA OF DISTURBANCE IS UNDER 43,560 SF, COVERAGE UNDER EPA NPDES PHASE II CONSTRUCTION GENERAL PERMIT IS NOT REQUIRED.
12. PAVEMENT MARKINGS SHALL BE CONSTRUCTED USING WHITE, YELLOW, OR BLUE TRAFFIC PAINT (WHERE SPECIFIED) MEETING THE REQUIREMENTS OF AASHTO M248, TYPE F OR EQUAL. PAINTED ISLANDS AND LOADING ZONES SHALL BE 4"-WIDE DIAGONAL WHITE LINES 3'-0" O.C. BORDERED BY 4"-WIDE WHITE LINES. PARKING STALLS SHALL BE SEPARATED BY 4"-WIDE WHITE LINES. SEE DETAILS FOR HANDICAP SYMBOLS, SIGNS AND SIGN DETAILS. PAVEMENT MARKINGS SHALL BE INSTALLED AT LEAST 14-DAYS AFTER INSTALLATION OF WEARING COURSE PAVEMENT. CONTRACTOR SHALL APPLY TWO (2) COATS OF ALL PAVEMENT MARKINGS.
13. PAVEMENT MARKINGS AND SIGNS SHALL CONFORM TO THE REQUIREMENTS OF THE "MANUAL ON UNIFORM TRAFFIC DEVICES," "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" AND THE AMERICANS WITH DISABILITIES ACT (ADA), LATEST EDITIONS.
14. UNLESS OTHERWISE NOTED, ALL NEW CURBING SHALL BE VERTICAL GRANITE WITH A MINIMUM RADIUS OF 4'.
15. THE CONTRACTOR SHALL VERIFY ALL BUILDING DIMENSIONS WITH THE ARCHITECTURAL AND STRUCTURAL DRAWINGS PRIOR TO CONSTRUCTION. ANY AND ALL DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF BOTH THE ARCHITECT AND CIVIL ENGINEER FOR RESOLUTION.
16. ALL CONDITIONS ON THIS PLAN SHALL REMAIN IN EFFECT IN PERPETUITY PURSUANT TO THE REQUIREMENTS OF THE SITE PLAN REVIEW REGULATIONS.
17. ALL IMPROVEMENTS SHOWN ON THIS SITE PLAN SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE PLAN BY THE PROPERTY OWNER AND ALL FUTURE PROPERTY OWNERS. NO CHANGES SHALL BE MADE TO THIS SITE PLAN WITHOUT THE EXPRESS APPROVAL OF THE PORTSMOUTH PLANNING DIRECTOR
18. THIS SITE PLAN SHALL BE RECORDED IN THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
19. SITEWORK CONTRACTOR SHALL PREPARE A STAMPED AS-BUILT SITE PLAN STAMPED BY A LICENSED LAND SURVEYOR (LLS) & PROVIDE A DIGITAL (CAD FORMAT) COPY FOR THE CITY'S G.I.S. DATA BASE.
20. TRASH AND RECYCLING SHALL BE STORED INSIDE BUILDING.
21. THIS DEVELOPMENT IS SUBJECT TO LICENSING AGREEMENTS w/THE PORTSMOUTH CITY COUNCIL.
22. RESTAURANTS SHALL NOT OCCUPY BUILDING WITHOUT THE INSTALLATION OF A GREASE TRAP MEETING CITY CODE.
23. ALL SIDEWALKS TO BE CONSTRUCTED WITHIN PROJECT LIMITS SHALL BE BRICK. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING PORTSMOUTH DPW TO CONFIRM BRICK SPECIFICATIONS.
24. STREET ADDRESSES FOR EACH USE SHALL BE DETERMINED BY PORTSMOUTH FIRE DEPARTMENT & DPW.
25. SNOW SHALL BE STORED AT THE EDGE OF PAVEMENT, IN AREAS SHOWN ON THE PLAN, OR TRUCKED OFF SITE.
26. BUILDING USES BY FLOOR (BY FOOTPRINT, ACTUAL SPACE MAY VARY):

BASEMENT:	±9,326 S.F. PARKING
FLOOR 1:	±12,334 S.F. RETAIL
FLOORS 2-4:	±12,488 S.F. RESIDENTIAL
TOTAL:	±59,124 S.F.



BASEMENT GARAGE PARKING LAYOUT

P5042

ALTUS ENGINEERING, INC.
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(603) 433-2335 www.altus-eng.com

ERIC D. WEINRIEB No. 7634 LICENSED PROFESSIONAL ENGINEER - STATE OF NEW HAMPSHIRE

6/21/21

NOT FOR CONSTRUCTION

ISSUED FOR: TAC

ISSUE DATE: JUNE 21, 2021

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	CLIENT REVIEW	EBS	05/21/20
1	TAC WORK SESSION	EBS	07/07/20
2	TAC	EBS	10/19/20
3	PB CONSULTATION	EBS	12/30/20
4	REV. BLDG. HEIGHT	EBS	01/26/21
5	TAC	EBS	03/22/21
6	REV. FOOTPRINT FOR HDC	EBS	04/08/21
7	TAC	EBS	04/19/21
8	TAC	EBS	05/19/21
9	TAC	EBS	06/21/21

DRAWN BY: EBS
APPROVED BY: EDW
DRAWING FILE: 5042-SITE.dwg

SCALE: 22"x34" 1" = 20'
11"x17" 1" = 40'

OWNER:
64 VAUGHAN MALL, LLC
41 INDUSTRIAL DRIVE
EXETER, NH 0383

APPLICANT:
HAMPSHIRE DEVELOPMENT CORP.
41 INDUSTRIAL DRIVE
EXETER, NH 03833

PROJECT:
64 VAUGHAN MALL BUILDING RESTORATION
TAX MAP 126, LOT 1
64 VAUGHAN MALL
PORTSMOUTH, NH 03801

TITLE:
SITE PLAN

SHEET NUMBER:
C-3

DRAINAGE ANALYSIS

FOR

Site Redevelopment
of
64 Vaughan Street

64 Vaughan Street
Portsmouth, NH

Tax Map 126, Lot 1

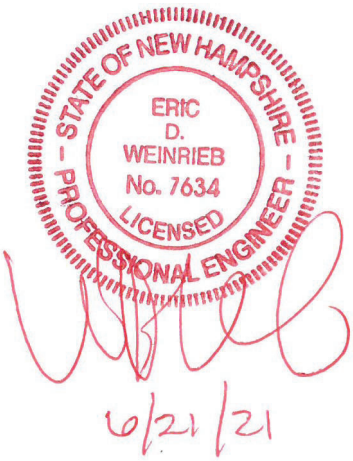
June 21, 2021

Prepared For:

Hampshire Development Corp.
41 Industrial Drive
Exeter, NH 03833

Prepared By:

ALTUS ENGINEERING, INC.
133 Court Street
Portsmouth, NH 03801
Phone: (603) 433-2335



ALTUS ENGINEERING, INC.

Table of Contents

ALTUS
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Section 1

Narrative

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PROJECT DESCRIPTION

Hampshire Development Corp. is proposing to redevelop an existing urban site located at 64 Vaughan Street in Portsmouth, NH. Identified as Assessor's Map 126, Lot 1, the property is approximately 0.32 (+/-) acres in size and is located in the City's Character District 5 (CD-5), Downtown and Historic Overlay zoning districts. The site is currently 99.94% impervious and hosts a building formerly used as a furniture store and a paved parking lot.

The proposed project will rehabilitate a portion of the existing structure, raze and rebuild another portion, construct an addition and install an underground parking garage in the existing basement. The finished product will consist of fourteen residential units and over 12,000sf of ground floor retail space. The project also envisions constructing a new sidewalk along the adjacent City-owned Worth parking lot and installing new landscape areas in the Worth lot and along the site's frontage on Vaughan Mall and Hanover Street.

Runoff from the redevelopment will be directed to an existing municipal closed drainage system by way of two new catch basins in the Worth lot and roof leaders that will collect the building downspouts along Hanover Street and the adjacent alley.

Site Soils

The NRCS indicates that the subject property consists of one primary soil classification:

699 – Urban Land, HSG C

Pre-Development (Existing Conditions)

The pre-development site conditions reflect the existing conditions of the site, which include the existing building and parking lot in addition to the surrounding area. The site discharges to the City's closed drainage systems in Hanover Street and Vaughan Mall. Identified as Point of Analysis (POA) #'s 1 (CB #4) and 2 (DMH #5202), these drainage systems are the analysis points for the Pre-Development drainage model.

The majority of the grades and elevations shown on the plans are based on a site survey completed by James Verra and Associates, Inc. One limited offsite area on Hanover Street was modeled using data from the City's GIS system. The study pre-development area was analyzed as four (4) watersheds, which discharge to POA #'s 1 and 2 as identified above.

Post-Development (Proposed Site Design)

A portion of the existing building will remain and be rehabilitated, another portion reconstructed and an addition added for a total of fourteen residential units and ground floor retail space. The adjacent Worth parking lot will be also reconfigured to add a new sidewalk and landscape islands.

The proposed stormwater system is depicted on the attached Post-Development Watershed Plan. For the post development analysis, the site was divided into eight (8) watershed areas to more accurately depict the post-development conditions. The same points of analysis used in the Pre-Development model (POA #'s1 and 2) were used for comparison of the Pre and Post development conditions.

The Post-Development Watershed Plan illustrates the proposed stormwater management system. Site topography, existing features, proposed site improvements, proposed grading, drainage and erosion control measures are shown on the accompanying plans. Recommended erosion control measures are based upon the December 2008 edition of the "*New Hampshire Stormwater Manual Volumes 1 through 3*" prepared by NHDES and Comprehensive Environmental, Inc. as amended.

CALCULATION METHODS

The drainage study was completed using the USDA SCS TR-20 Method within the HydroCAD Stormwater Modeling System. Reservoir routing was performed with the Dynamic Storage Indication method with automated calculation of tailwater conditions. Times of concentration (Tc) were set to a minimum of 6 minutes per TR-55. A Type III 24-hour rainfall distribution was utilized in analyzing the data for the 2, 10, 25 and 50 year - 24-hour storm events using rainfall data provided by the Northeast Regional Climate Center (NRCC). As the project site lies within a Coastal and Great Bay Community as identified by the NHDES Alteration of Terrain Bureau, all rainfall amounts were increased by 15% to account for potential future increases in rainfall due to climate change.

Disclaimer

Altus Engineering, Inc. notes that stormwater modeling is limited in its capacity to precisely predict peak rates of runoff and flood elevations. Results should not be considered to represent actual storm events due to the number of variables and assumptions involved in the modeling effort. Surface roughness coefficients (n), entrance loss coefficients (ke), velocity factors (kv) and times of concentration (Tc) are based on subjective field observations and engineering judgment using available data. For design purposes, curve numbers (Cn) describe the average conditions. However, curve numbers will vary from storm to storm depending on the antecedent runoff conditions (ARC) including saturation and frozen ground. Also, higher water elevations than predicted by modeling could occur if drainage channels, closed drain systems or culverts are not maintained and/or become blocked by debris before and/or during a storm event as this will impact flow capacity of the structures. Structures should be re-evaluated if future changes occur within relevant drainage areas in order to assess any required design modifications.

Drainage Analysis

A complete summary of the drainage model is included in the appendix of this report. The following table compares pre- and post-development peak rates at the Point of Analysis identified on the plans for the 2, 10, 25, and 50-year storm events:

Stormwater Modeling Summary
Peak Q (cfs) for Type III 24-Hour Storm Events

*Rainfall Intensities Reflect 15% Increase per AoT	**2-Yr Storm (3.69 inch)**	**10-Yr Storm (5.60 inch)**	**25-Yr Storm (7.10 inch)**	**50-Yr Storm (8.50 inch)**
POA #1 (Hanover Street)				
Pre	2.59	3.95	5.01	6.01
Post	2.56	3.92	4.99	5.98
Change	**-0.03**	**-0.03**	**-0.02**	**-0.03**
POA #2 (Vaughan Mall)				
Pre	1.47	2.25	2.86	3.43
Post	1.45	2.23	2.84	3.40
Change	**-0.02**	**-0.02**	**-0.02**	**-0.03**

As the above table demonstrates, the proposed peak rates of runoff will be decreased from the existing conditions for all analyzed storm events.

CONCLUSION

This proposed site redevelopment of 64 Vaughan Mall in Portsmouth, NH will have minimal adverse effect on abutting properties and infrastructure as a result of stormwater runoff or siltation. Post-construction peak rates of runoff from the site will be lower than the existing conditions for all analyzed storm events. Appropriate steps will be taken to properly mitigate erosion and sedimentation through the use of Best Management Practices for sediment and erosion control, including perimeter barriers during construction and permanent deep sump catch basins with grease hoods.

Section 2

Aerial Photo and USGS Map

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SITE


SITE
Piscataqua
Atlantic Heights
Christian Shore
Oak Terrace
Wentworth Acres
Bersum Gardens
Freemans Point
Nobles Island
Badgers Island
Creek Area
Meadowbrook
Pannaway Manor
PORTSMOUTH
Portsmouth Plains
Peverly Hill
Elwyn Park
Sagamore Hill
Spinney Creek
Sagamore Creek
Old Harbour
South Mill Pond
Portsmouth International Airport at Pease
Great Bay Community College
Maine-New Hampshire Bridge
Memorial Bridge
MAINE
NEW HAMPSHIRE
YORK CO
ROCKINGHAM CO
Piscataqua River
Paul Brook
Hodgson Brook
Great Bog
Pickering Brook
Sagamore Cr
Bellyhack Bog
Cole Family Burial Ground
Christian Remick Memorial Site
Dixon Street Cem
Cole Cem
Spinney Plot
Keen Plot
Rice Cem
Willey Lot
North Cem
Union Cem
Saint John's Cem
Paul Mitchell, the School
Point of Grave Burial Ground
African Burying Ground
Proprietors Cem
Calvary Cem
Saint Marys Cem
Temple Israel Cem
PATTERSON RD
INDUSTRIAL CORRIDOR RD
AVERLY LN
WOODBURY AVE
W PARK RD
GOSLING RD
NEWMARKET ST
PEASE BLVD
NEWINGTON ST
DURGIN LN
ORIENTAL GDNS
COMMERCE WAY
SHEARWATER DR
OSPREY DR
BLUE HERON DR
MARKET ST
ECHO AVE
GOOSE BAY DR
INTERNATIONAL DR
RYE ST
CORPORATE DR
NEW HAMPSHIRE AVE
ROCHESTER AVE
AVIATION AVE
OAK AVE
ASHLAND RD
SPAULDING TPKE
MEADOW RD
EDMOND AVE
MAPLEWOOD AVE
CENTRAL AVE
LESLIE DR
DENNETT ST
THORNTON ST
BARTLETT ST
STATE ST
CABOT ST
MIDDLE ST
RICHARDS AVE
MILLER AVE
BROAD ST
SOUTH ST
CLOUGH DR
ALDRICH RD
LINCOLN AVE
UNION ST
WIBIRD ST
THAXTER RD
SPINNEY RD
ISLINGTON ST
ESSEX AVE
MIDDLE RD
COAKLEY RD
BORTHWICK AVE
GRAFTON DR
SHERBURNE RD
COLONIAL DR
LAFAYETTE RD
LEDGEWOOD DR
GREENLEAF AVE
SAGAMORE AVE
JONES AVE
ODIORNE POINT RD
ELWYN RD
MIRONA RD
PEVERLY HILL RD
WEST RD
CAMPUS RD
BANFIELD RD
CONSTITUTION AVE
OCEAN RD
BUCKMINSTER WAY
COOLIDGE DR
GRANT AVE
TAFT RD
MCKINLEY RD
HARDING RD
PLEASANT ST
DENNETT RD
OLD DENNETT RD
RANGER DR
ELIOT RD
Byp 1
103
1
1A
1B
4
16
33
95

Section 3

Drainage Calculations

Pre-Development
2-Year, 24-Hour Summary
10-Year, 24-Hour Complete
25-Year, 24-Hour Summary
50-Year, 24-Hour Summary

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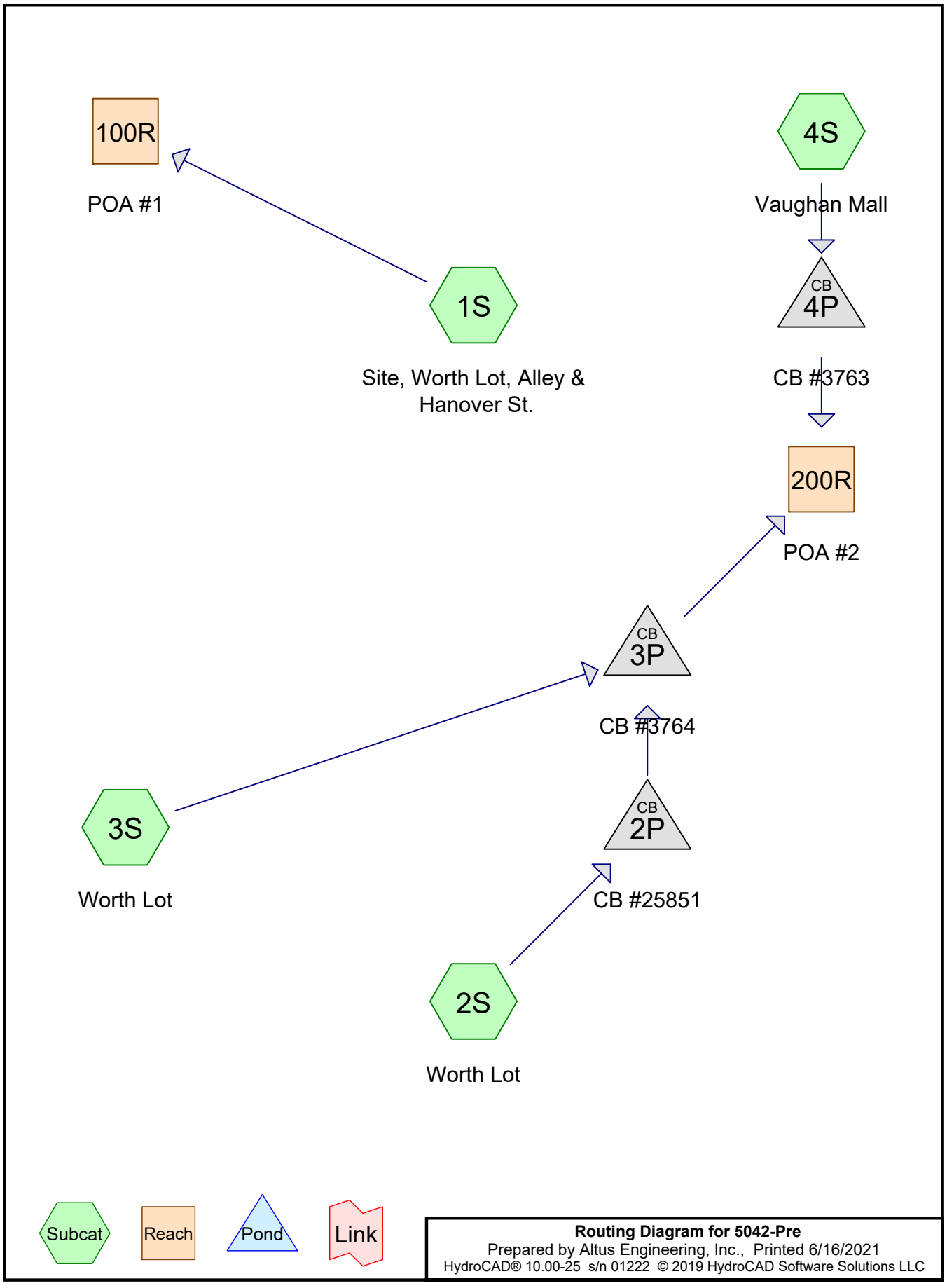


Routing Diagram for 5042-Pre
Prepared by Altus Engineering, Inc., Printed 6/16/2021

Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Site, Worth Lot, Alley & Runoff Area=32,094 sf 99.25% Impervious Runoff Depth=3.46"
Flow Length=347' Tc=6.0 min CN=98 Runoff=2.59 cfs 0.212 af

Subcatchment 2S: Worth Lot Runoff Area=4,739 sf 98.48% Impervious Runoff Depth=3.46"
Flow Length=124' Tc=6.0 min CN=98 Runoff=0.38 cfs 0.031 af

Subcatchment 3S: Worth Lot Runoff Area=10,680 sf 98.58% Impervious Runoff Depth=3.46"
Flow Length=213' Tc=6.0 min CN=98 Runoff=0.86 cfs 0.071 af

Subcatchment 4S: Vaughan Mall Runoff Area=2,908 sf 92.61% Impervious Runoff Depth=3.23"
Flow Length=61' Tc=6.0 min CN=96 Runoff=0.23 cfs 0.018 af

Reach 100R: POA #1 Inflow=2.59 cfs 0.212 af
Outflow=2.59 cfs 0.212 af

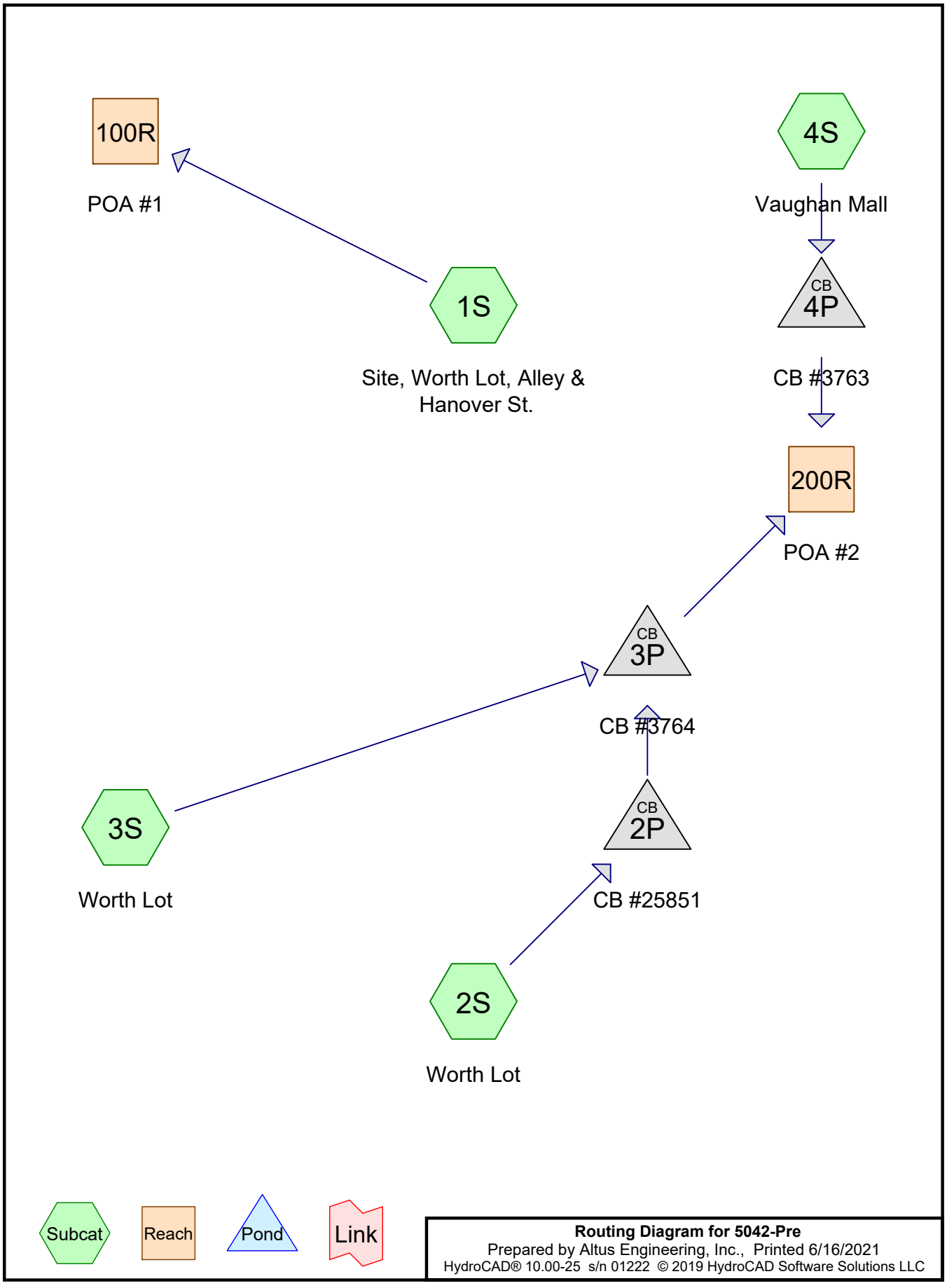
Reach 200R: POA #2 Inflow=1.47 cfs 0.120 af
Outflow=1.47 cfs 0.120 af

Pond 2P: CB #25851 Peak Elev=12.32' Inflow=0.38 cfs 0.031 af
12.0" Round Culvert n=0.012 L=64.0' S=0.0127 '/' Outflow=0.38 cfs 0.031 af

Pond 3P: CB #3764 Peak Elev=11.74' Inflow=1.24 cfs 0.102 af
12.0" Round Culvert n=0.012 L=18.0' S=0.0100 '/' Outflow=1.24 cfs 0.102 af

Pond 4P: CB #3763 Peak Elev=12.26' Inflow=0.23 cfs 0.018 af
12.0" Round Culvert n=0.012 L=40.0' S=0.0140 '/' Outflow=0.23 cfs 0.018 af

Total Runoff Area = 1.158 ac Runoff Volume = 0.332 af Average Runoff Depth = 3.44"
1.35% Pervious = 0.016 ac 98.65% Impervious = 1.142 ac



Routing Diagram for 5042-Pre
Prepared by Altus Engineering, Inc., Printed 6/16/2021

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.016	74	>75% Grass cover, Good, HSG C (1S, 2S, 3S, 4S)
0.411	98	Paved parking, HSG C (2S, 3S, 4S)
0.494	98	Paved roads w/curbs & sewers, HSG C (1S)
0.237	98	Roofs, HSG C (1S)
1.158	**98**	**TOTAL AREA**

Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Site, Worth Lot, Alley & Runoff Area=32,094 sf 99.25% Impervious Runoff Depth=5.36"
Flow Length=347' Tc=6.0 min CN=98 Runoff=3.95 cfs 0.329 af

Subcatchment 2S: Worth Lot Runoff Area=4,739 sf 98.48% Impervious Runoff Depth=5.36"
Flow Length=124' Tc=6.0 min CN=98 Runoff=0.58 cfs 0.049 af

Subcatchment 3S: Worth Lot Runoff Area=10,680 sf 98.58% Impervious Runoff Depth=5.36"
Flow Length=213' Tc=6.0 min CN=98 Runoff=1.31 cfs 0.110 af

Subcatchment 4S: Vaughan Mall Runoff Area=2,908 sf 92.61% Impervious Runoff Depth=5.13"
Flow Length=61' Tc=6.0 min CN=96 Runoff=0.35 cfs 0.029 af

Reach 100R: POA #1 Inflow=3.95 cfs 0.329 af
Outflow=3.95 cfs 0.329 af

Reach 200R: POA #2 Inflow=2.25 cfs 0.187 af
Outflow=2.25 cfs 0.187 af

Pond 2P: CB #25851 Peak Elev=12.39' Inflow=0.58 cfs 0.049 af
12.0" Round Culvert n=0.012 L=64.0' S=0.0127 '/' Outflow=0.58 cfs 0.049 af

Pond 3P: CB #3764 Peak Elev=11.94' Inflow=1.90 cfs 0.158 af
12.0" Round Culvert n=0.012 L=18.0' S=0.0100 '/' Outflow=1.90 cfs 0.158 af

Pond 4P: CB #3763 Peak Elev=12.32' Inflow=0.35 cfs 0.029 af
12.0" Round Culvert n=0.012 L=40.0' S=0.0140 '/' Outflow=0.35 cfs 0.029 af

Total Runoff Area = 1.158 ac Runoff Volume = 0.516 af Average Runoff Depth = 5.35"
1.35% Pervious = 0.016 ac 98.65% Impervious = 1.142 ac

Summary for Subcatchment 1S: Site, Worth Lot, Alley & Hanover St.

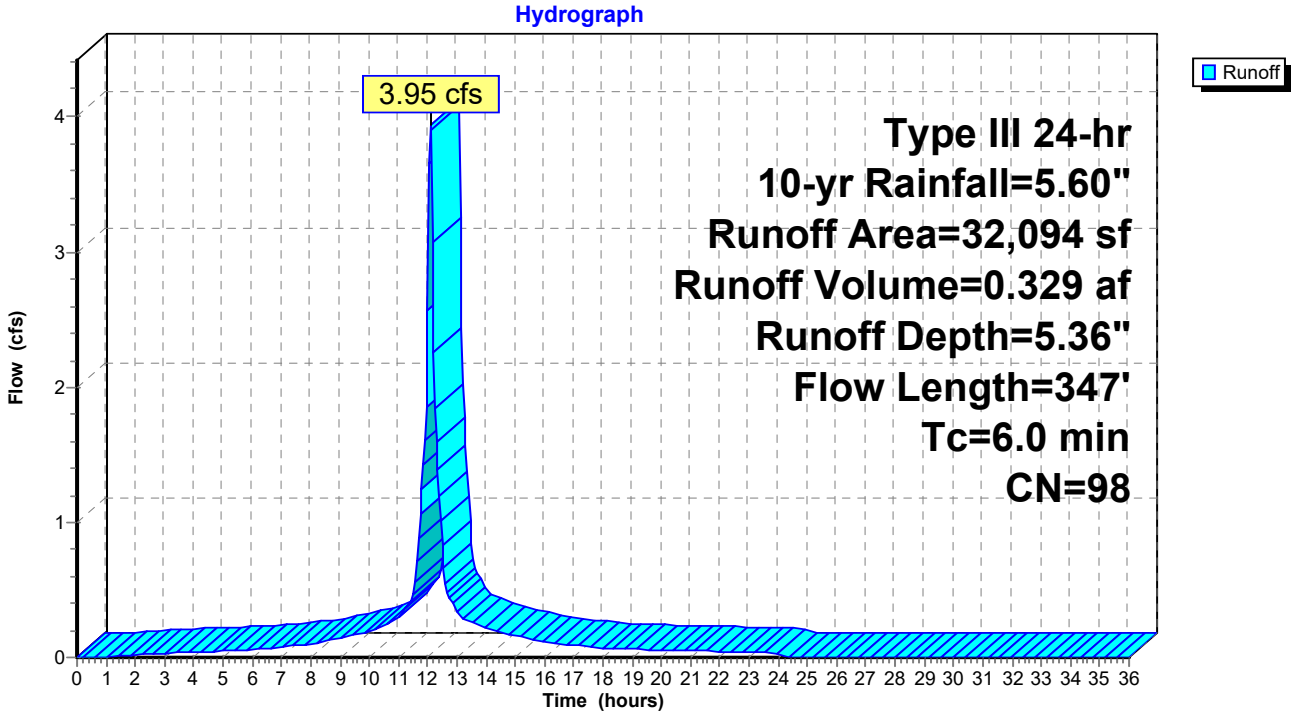
Runoff = 3.95 cfs @ 12.09 hrs, Volume= 0.329 af, Depth= 5.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.60"

Area (sf)	CN	Description
242	74	>75% Grass cover, Good, HSG C
21,524	98	Paved roads w/curbs & sewers, HSG C
10,328	98	Roofs, HSG C
32,094	98	Weighted Average
242		0.75% Pervious Area
31,852		99.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	29	0.0200	1.15		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.69"
2.0	318	0.0171	2.65		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.4	347	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 1S: Site, Worth Lot, Alley & Hanover St.



Summary for Subcatchment 2S: Worth Lot

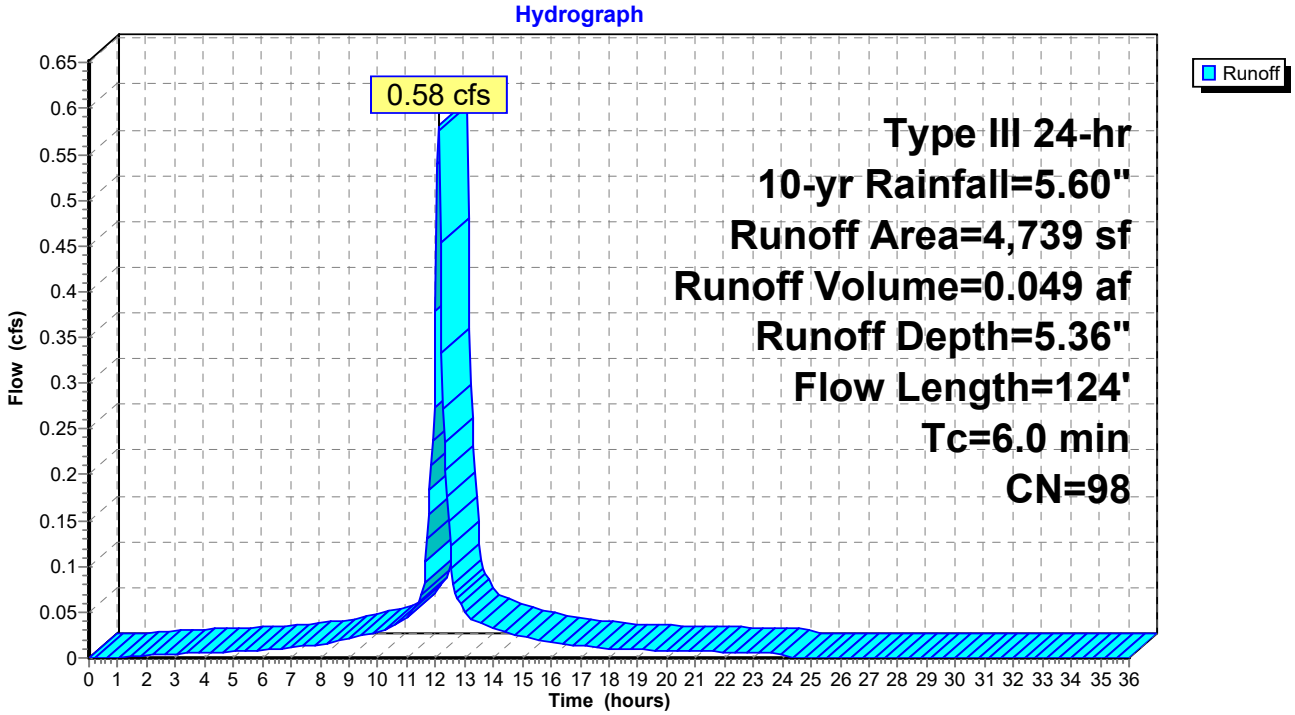
Runoff = 0.58 cfs @ 12.09 hrs, Volume= 0.049 af, Depth= 5.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.60"

Area (sf)	CN	Description
72	74	>75% Grass cover, Good, HSG C
4,667	98	Paved parking, HSG C
4,739	98	Weighted Average
72		1.52% Pervious Area
4,667		98.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	30	0.0150	1.03		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.69"
0.2	45	0.0281	3.40		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.3	49	0.0240	3.14		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.0	124	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 2S: Worth Lot



Summary for Subcatchment 3S: Worth Lot

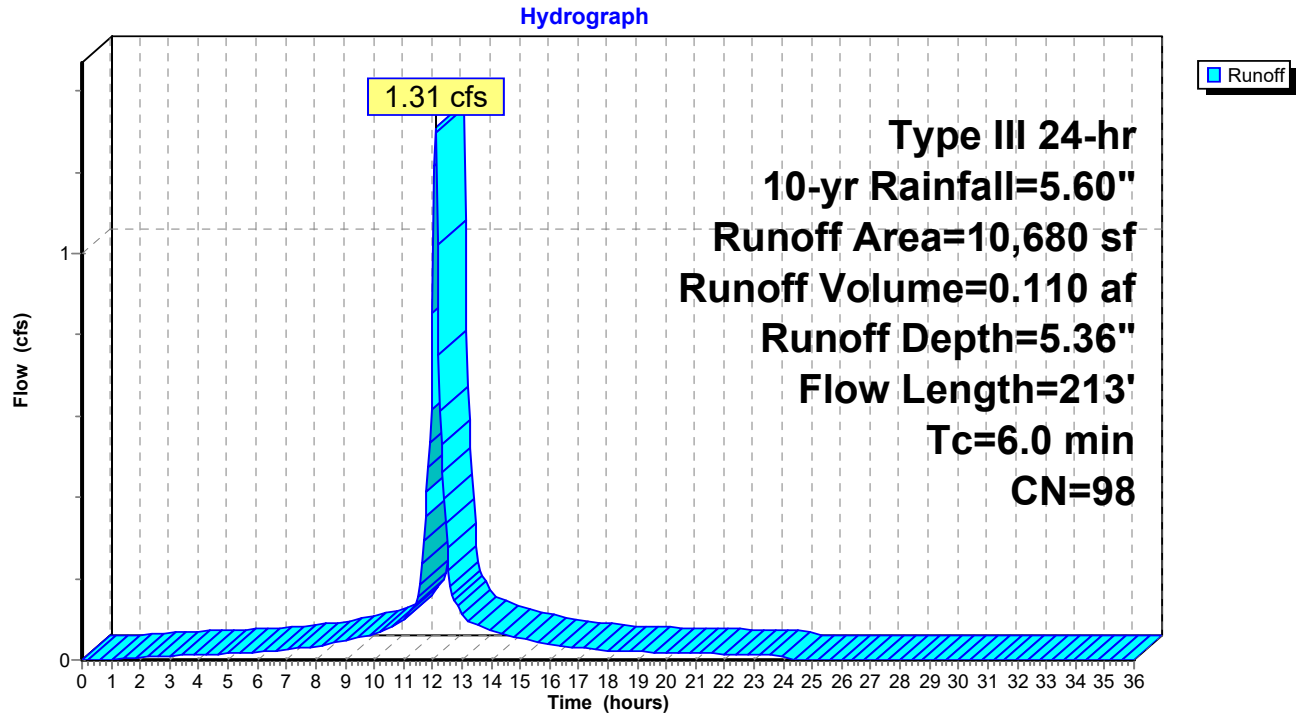
Runoff = 1.31 cfs @ 12.09 hrs, Volume= 0.110 af, Depth= 5.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.60"

Area (sf)	CN	Description
152	74	>75% Grass cover, Good, HSG C
10,528	98	Paved parking, HSG C
10,680	98	Weighted Average
152		1.42% Pervious Area
10,528		98.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	24	0.0100	0.84		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.69"
0.5	59	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.1	130	0.0103	2.06		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.1	213	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 3S: Worth Lot



Summary for Subcatchment 4S: Vaughan Mall

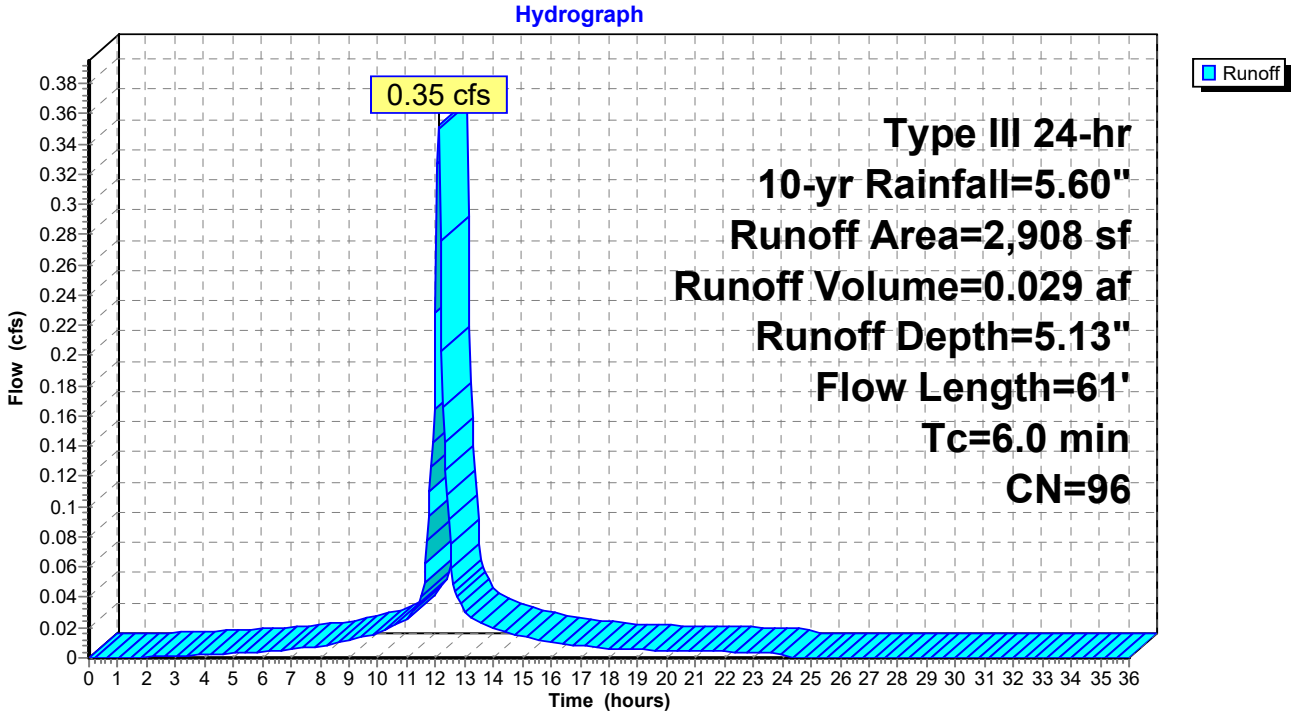
Runoff = 0.35 cfs @ 12.09 hrs, Volume= 0.029 af, Depth= 5.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.60"

Area (sf)	CN	Description
215	74	>75% Grass cover, Good, HSG C
2,693	98	Paved parking, HSG C
2,908	96	Weighted Average
215		7.39% Pervious Area
2,693		92.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	30	0.0097	0.87		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.69"
0.3	31	0.0093	1.96		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.9	61	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 4S: Vaughan Mall

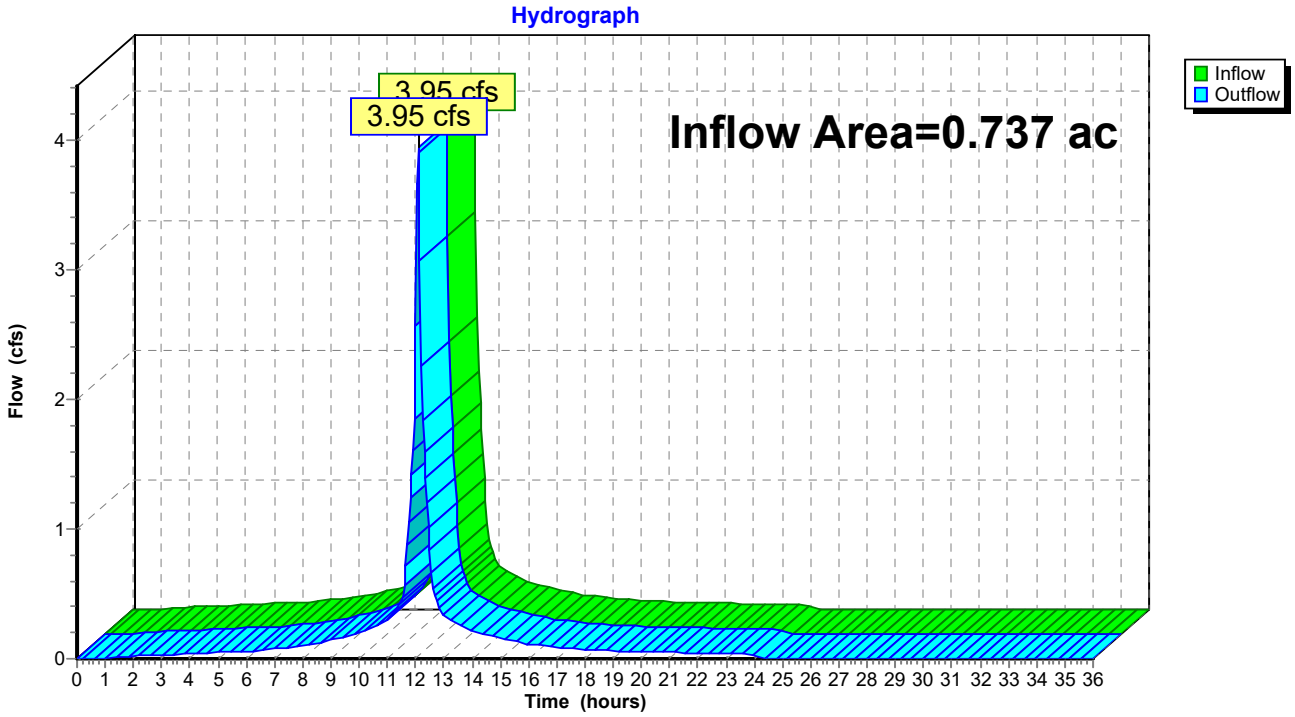


Summary for Reach 100R: POA #1

Inflow Area = 0.737 ac, 99.25% Impervious, Inflow Depth = 5.36" for 10-yr event
Inflow = 3.95 cfs @ 12.09 hrs, Volume= 0.329 af
Outflow = 3.95 cfs @ 12.09 hrs, Volume= 0.329 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Reach 100R: POA #1

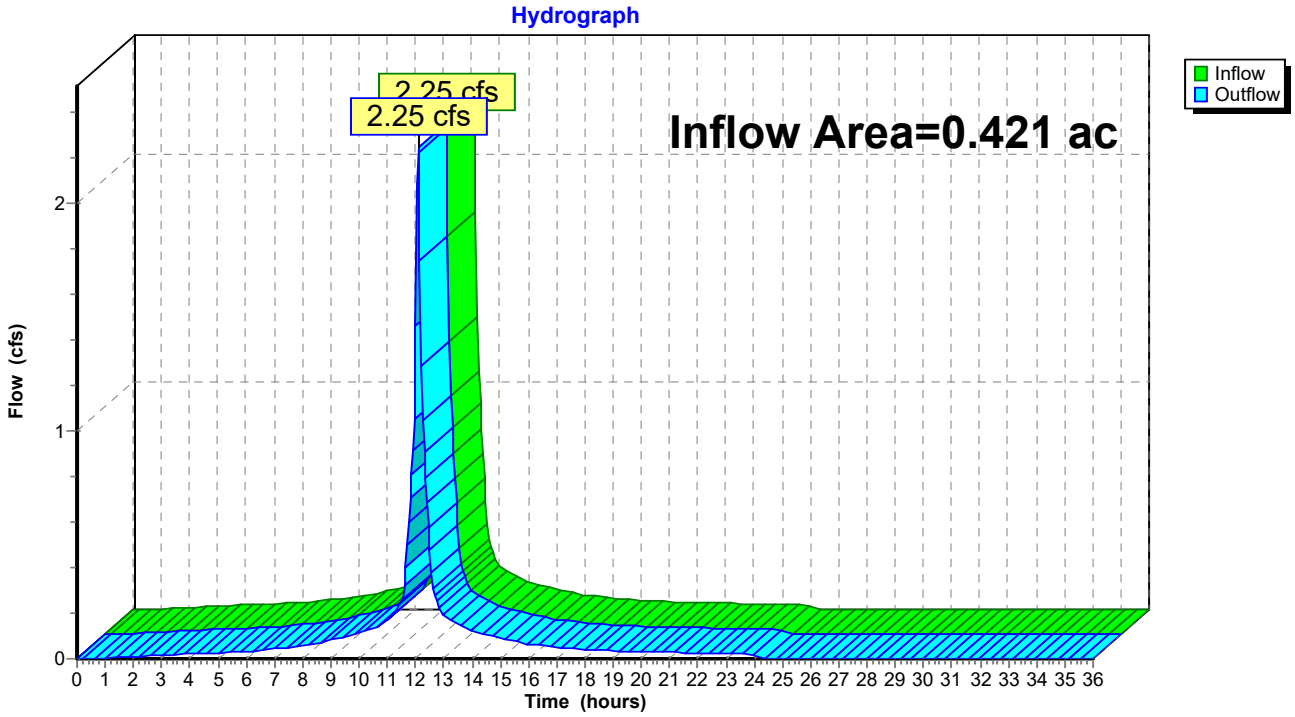


Summary for Reach 200R: POA #2

Inflow Area = 0.421 ac, 97.60% Impervious, Inflow Depth = 5.33" for 10-yr event
Inflow = 2.25 cfs @ 12.09 hrs, Volume= 0.187 af
Outflow = 2.25 cfs @ 12.09 hrs, Volume= 0.187 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Reach 200R: POA #2



Summary for Pond 2P: CB #25851

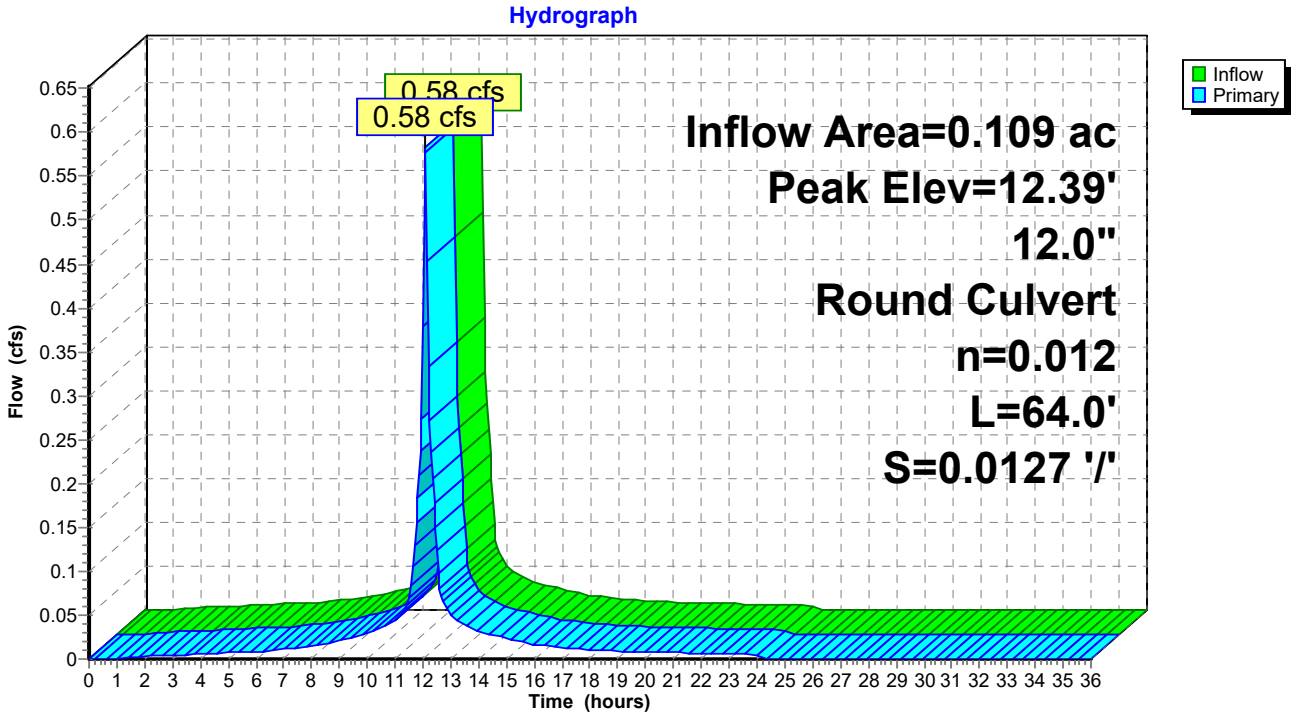
Inflow Area = 0.109 ac, 98.48% Impervious, Inflow Depth = 5.36" for 10-yr event
Inflow = 0.58 cfs @ 12.09 hrs, Volume= 0.049 af
Outflow = 0.58 cfs @ 12.09 hrs, Volume= 0.049 af, Atten= 0%, Lag= 0.0 min
Primary = 0.58 cfs @ 12.09 hrs, Volume= 0.049 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 12.39' @ 12.09 hrs
Flood Elev= 16.26'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.01'	**12.0" Round Culvert** L= 64.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 12.01' / 11.20' S= 0.0127 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.57 cfs @ 12.09 hrs HW=12.39' (Free Discharge)
1=Culvert (Inlet Controls 0.57 cfs @ 2.09 fps)

Pond 2P: CB #25851



Summary for Pond 3P: CB #3764

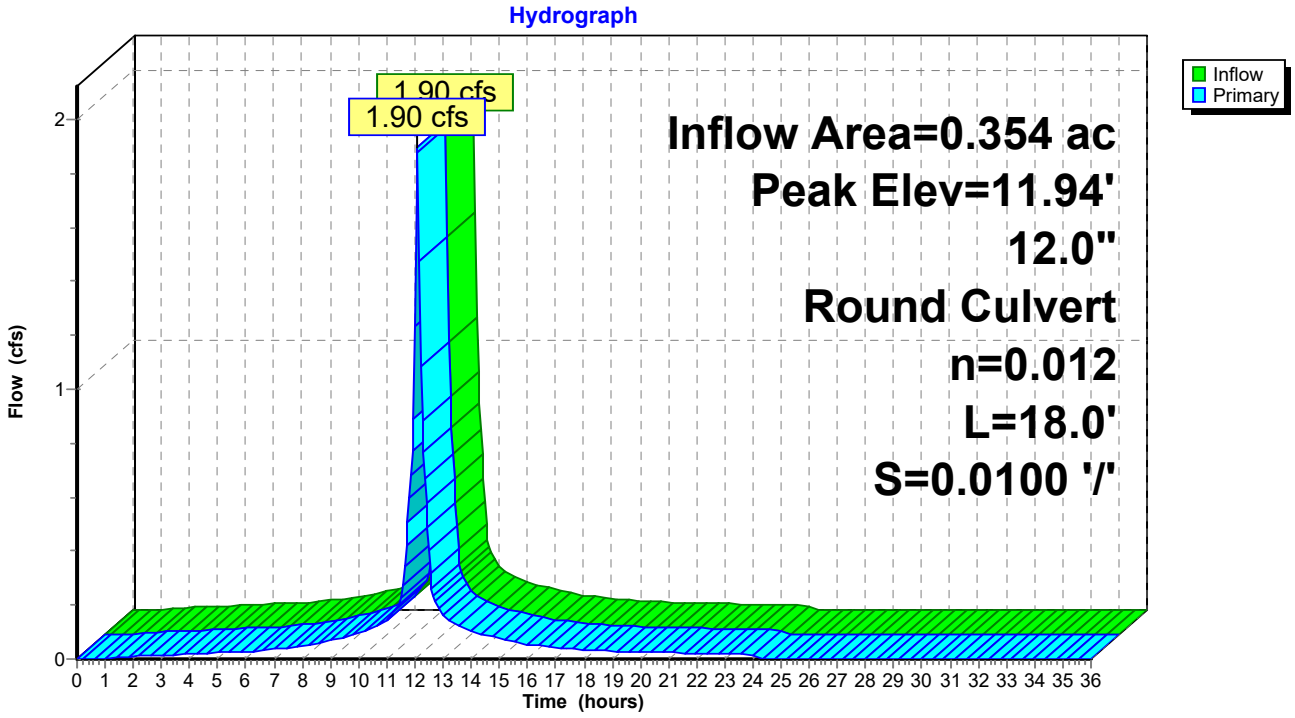
Inflow Area = 0.354 ac, 98.55% Impervious, Inflow Depth = 5.36" for 10-yr event
Inflow = 1.90 cfs @ 12.09 hrs, Volume= 0.158 af
Outflow = 1.90 cfs @ 12.09 hrs, Volume= 0.158 af, Atten= 0%, Lag= 0.0 min
Primary = 1.90 cfs @ 12.09 hrs, Volume= 0.158 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 11.94' @ 12.09 hrs
Flood Elev= 15.05'

Device	Routing	Invert	Outlet Devices
#1	Primary	11.10'	**12.0" Round Culvert** L= 18.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 11.10' / 10.92' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.84 cfs @ 12.09 hrs HW=11.93' (Free Discharge)
1=Culvert (Barrel Controls 1.84 cfs @ 3.61 fps)

Pond 3P: CB #3764



Summary for Pond 4P: CB #3763

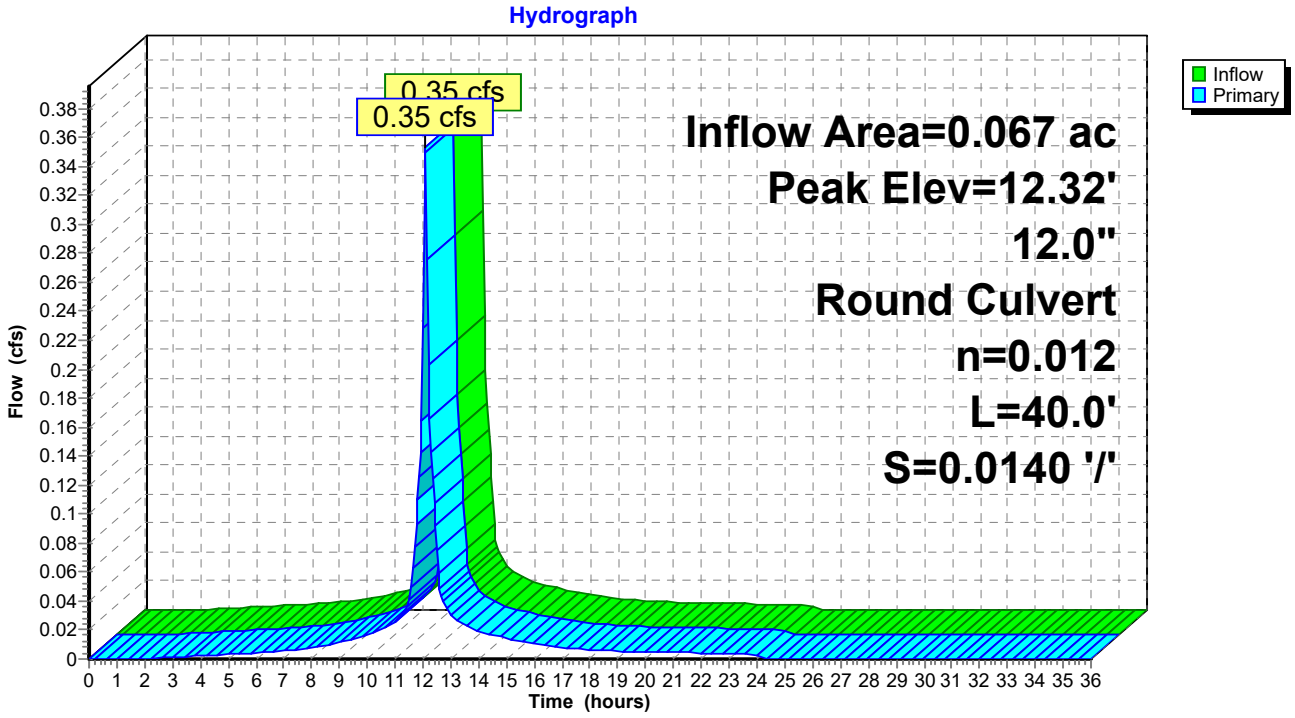
Inflow Area = 0.067 ac, 92.61% Impervious, Inflow Depth = 5.13" for 10-yr event
Inflow = 0.35 cfs @ 12.09 hrs, Volume= 0.029 af
Outflow = 0.35 cfs @ 12.09 hrs, Volume= 0.029 af, Atten= 0%, Lag= 0.0 min
Primary = 0.35 cfs @ 12.09 hrs, Volume= 0.029 af

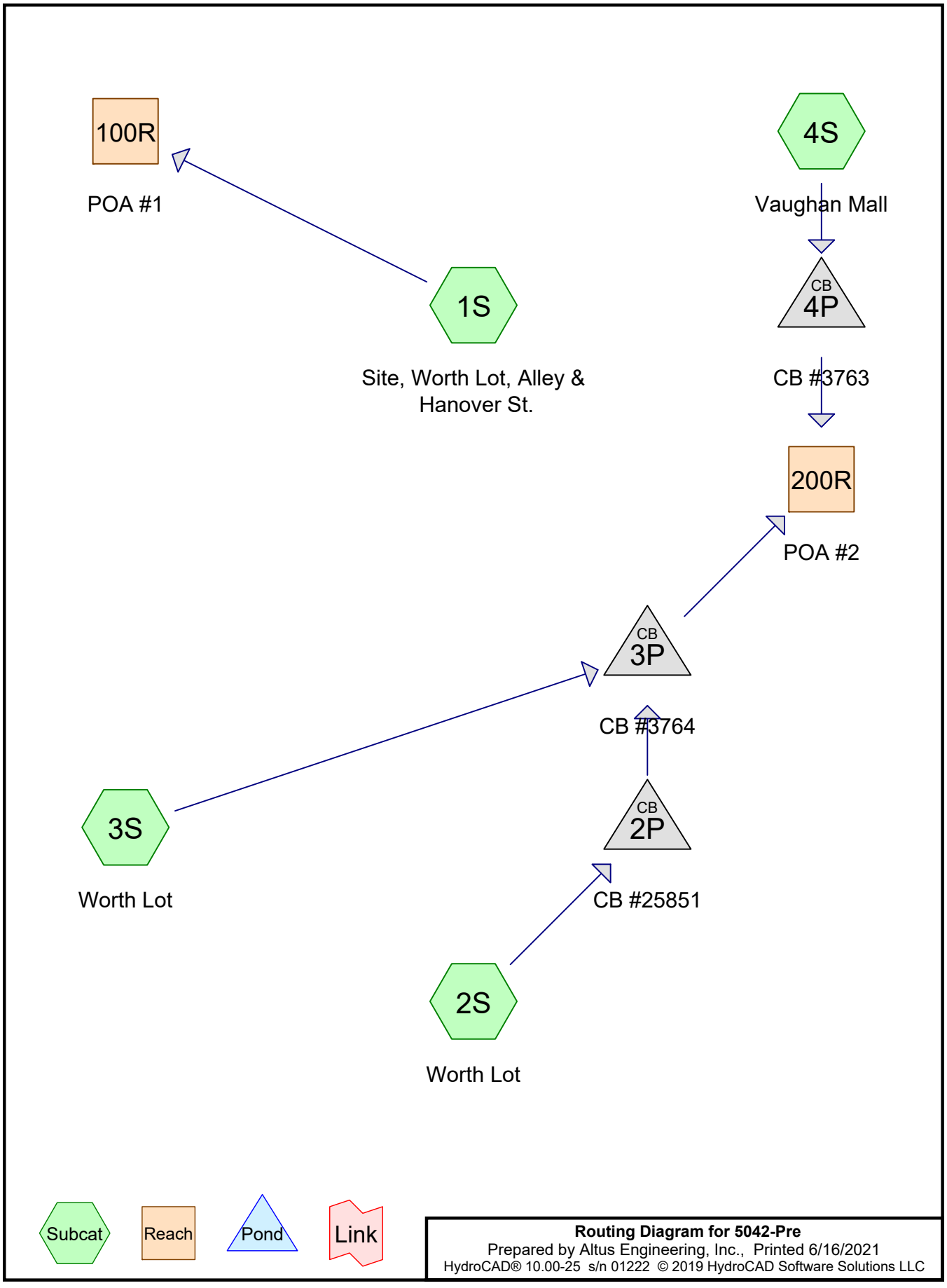
Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 12.32' @ 12.09 hrs
Flood Elev= 14.71'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.03'	**12.0" Round Culvert** L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 12.03' / 11.47' S= 0.0140 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.34 cfs @ 12.09 hrs HW=12.32' (Free Discharge)
1=Culvert (Inlet Controls 0.34 cfs @ 1.83 fps)

Pond 4P: CB #3763





Routing Diagram for 5042-Pre
Prepared by Altus Engineering, Inc., Printed 6/16/2021

Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Site, Worth Lot, Alley & Runoff Area=32,094 sf 99.25% Impervious Runoff Depth=6.86"
Flow Length=347' Tc=6.0 min CN=98 Runoff=5.01 cfs 0.421 af

Subcatchment 2S: Worth Lot Runoff Area=4,739 sf 98.48% Impervious Runoff Depth=6.86"
Flow Length=124' Tc=6.0 min CN=98 Runoff=0.74 cfs 0.062 af

Subcatchment 3S: Worth Lot Runoff Area=10,680 sf 98.58% Impervious Runoff Depth=6.86"
Flow Length=213' Tc=6.0 min CN=98 Runoff=1.67 cfs 0.140 af

Subcatchment 4S: Vaughan Mall Runoff Area=2,908 sf 92.61% Impervious Runoff Depth=6.62"
Flow Length=61' Tc=6.0 min CN=96 Runoff=0.45 cfs 0.037 af

Reach 100R: POA #1 Inflow=5.01 cfs 0.421 af
Outflow=5.01 cfs 0.421 af

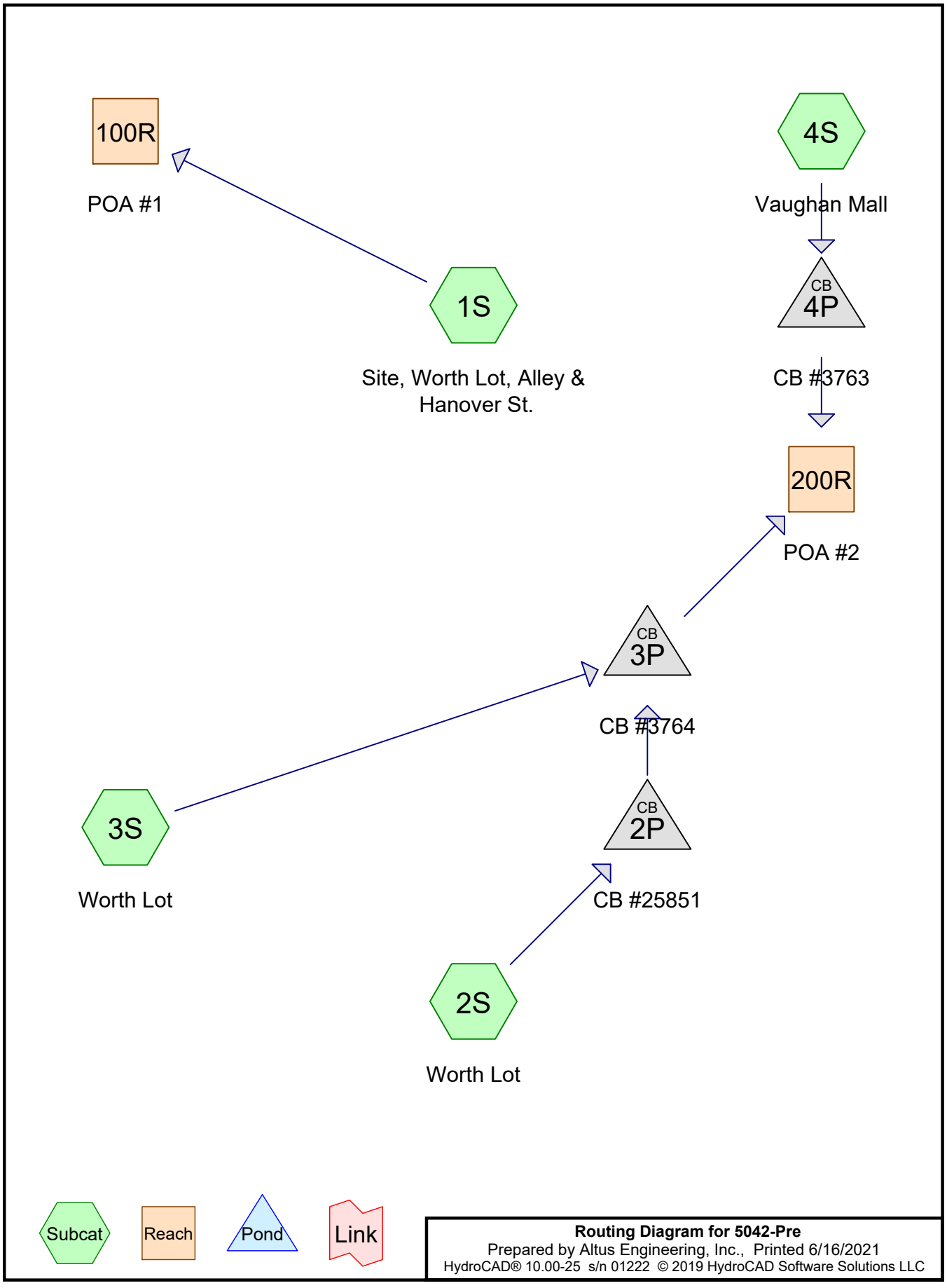
Reach 200R: POA #2 Inflow=2.86 cfs 0.239 af
Outflow=2.86 cfs 0.239 af

Pond 2P: CB #25851 Peak Elev=12.45' Inflow=0.74 cfs 0.062 af
12.0" Round Culvert n=0.012 L=64.0' S=0.0127 '/' Outflow=0.74 cfs 0.062 af

Pond 3P: CB #3764 Peak Elev=12.09' Inflow=2.41 cfs 0.202 af
12.0" Round Culvert n=0.012 L=18.0' S=0.0100 '/' Outflow=2.41 cfs 0.202 af

Pond 4P: CB #3763 Peak Elev=12.36' Inflow=0.45 cfs 0.037 af
12.0" Round Culvert n=0.012 L=40.0' S=0.0140 '/' Outflow=0.45 cfs 0.037 af

Total Runoff Area = 1.158 ac Runoff Volume = 0.660 af Average Runoff Depth = 6.85"
1.35% Pervious = 0.016 ac 98.65% Impervious = 1.142 ac



Routing Diagram for 5042-Pre
Prepared by Altus Engineering, Inc., Printed 6/16/2021

Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Site, Worth Lot, Alley & Runoff Area=32,094 sf 99.25% Impervious Runoff Depth=8.26"
Flow Length=347' Tc=6.0 min CN=98 Runoff=6.01 cfs 0.507 af

Subcatchment 2S: Worth Lot Runoff Area=4,739 sf 98.48% Impervious Runoff Depth=8.26"
Flow Length=124' Tc=6.0 min CN=98 Runoff=0.89 cfs 0.075 af

Subcatchment 3S: Worth Lot Runoff Area=10,680 sf 98.58% Impervious Runoff Depth=8.26"
Flow Length=213' Tc=6.0 min CN=98 Runoff=2.00 cfs 0.169 af

Subcatchment 4S: Vaughan Mall Runoff Area=2,908 sf 92.61% Impervious Runoff Depth=8.02"
Flow Length=61' Tc=6.0 min CN=96 Runoff=0.54 cfs 0.045 af

Reach 100R: POA #1 Inflow=6.01 cfs 0.507 af
Outflow=6.01 cfs 0.507 af

Reach 200R: POA #2 Inflow=3.43 cfs 0.288 af
Outflow=3.43 cfs 0.288 af

Pond 2P: CB #25851 Peak Elev=12.49' Inflow=0.89 cfs 0.075 af
12.0" Round Culvert n=0.012 L=64.0' S=0.0127 '/' Outflow=0.89 cfs 0.075 af

Pond 3P: CB #3764 Peak Elev=12.25' Inflow=2.89 cfs 0.244 af
12.0" Round Culvert n=0.012 L=18.0' S=0.0100 '/' Outflow=2.89 cfs 0.244 af

Pond 4P: CB #3763 Peak Elev=12.40' Inflow=0.54 cfs 0.045 af
12.0" Round Culvert n=0.012 L=40.0' S=0.0140 '/' Outflow=0.54 cfs 0.045 af

Total Runoff Area = 1.158 ac Runoff Volume = 0.795 af Average Runoff Depth = 8.25"
1.35% Pervious = 0.016 ac 98.65% Impervious = 1.142 ac

Section 4

Drainage Calculations

Post-Development
2-Year, 24-Hour Summary
10-Year, 24-Hour Complete
25-Year, 24-Hour Summary
50-Year, 24-Hour Summary

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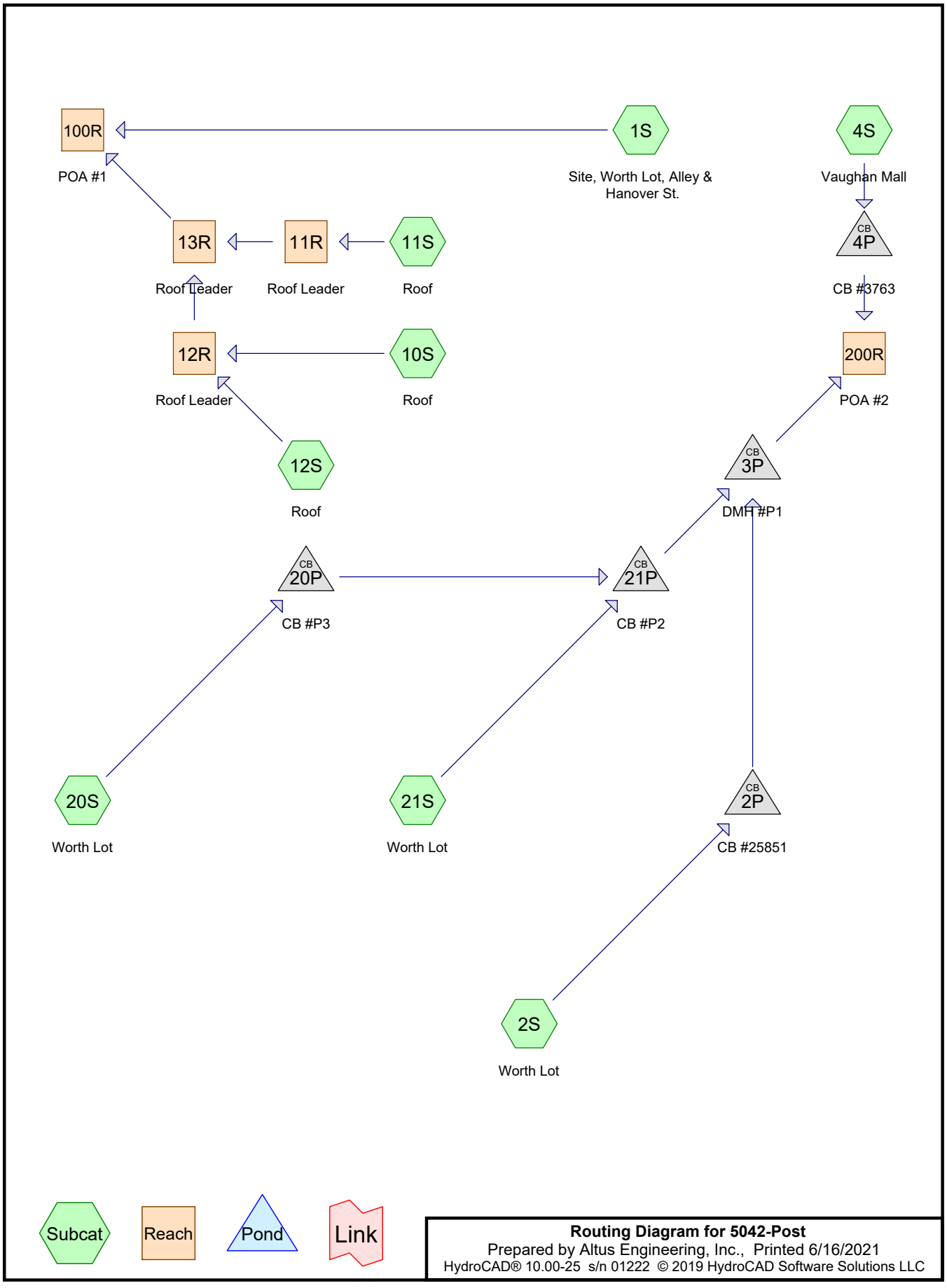


Routing Diagram for 5042-Post
Prepared by Altus Engineering, Inc., Printed 6/16/2021

Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Site, Worth Lot, Alley & Runoff Area=19,157 sf 98.39% Impervious Runoff Depth=3.46"
Flow Length=347' Tc=6.0 min CN=98 Runoff=1.54 cfs 0.127 af

Subcatchment 2S: Worth Lot Runoff Area=4,739 sf 91.90% Impervious Runoff Depth=3.23"
Flow Length=124' Tc=6.0 min CN=96 Runoff=0.37 cfs 0.029 af

Subcatchment 4S: Vaughan Mall Runoff Area=2,908 sf 92.61% Impervious Runoff Depth=3.23"
Flow Length=61' Tc=6.0 min CN=96 Runoff=0.23 cfs 0.018 af

Subcatchment 10S: Roof Runoff Area=8,053 sf 100.00% Impervious Runoff Depth=3.46"
Tc=6.0 min CN=98 Runoff=0.65 cfs 0.053 af

Subcatchment 11S: Roof Runoff Area=2,409 sf 88.71% Impervious Runoff Depth=3.13"
Tc=6.0 min CN=95 Runoff=0.19 cfs 0.014 af

Subcatchment 12S: Roof Runoff Area=2,555 sf 100.00% Impervious Runoff Depth=3.46"
Tc=6.0 min CN=98 Runoff=0.21 cfs 0.017 af

Subcatchment 20S: Worth Lot Runoff Area=4,709 sf 99.17% Impervious Runoff Depth=3.46"
Flow Length=100' Tc=6.0 min CN=98 Runoff=0.38 cfs 0.031 af

Subcatchment 21S: Worth Lot Runoff Area=5,891 sf 95.25% Impervious Runoff Depth=3.34"
Flow Length=105' Tc=6.0 min CN=97 Runoff=0.47 cfs 0.038 af

Reach 11R: Roof Leader Avg. Flow Depth=0.19' Max Vel=2.72 fps Inflow=0.19 cfs 0.014 af
6.0" Round Pipe n=0.012 L=94.0' S=0.0100 '/' Capacity=0.61 cfs Outflow=0.18 cfs 0.014 af

Reach 12R: Roof Leader Avg. Flow Depth=0.28' Max Vel=6.04 fps Inflow=0.85 cfs 0.070 af
8.0" Round Pipe n=0.012 L=113.0' S=0.0300 '/' Capacity=2.27 cfs Outflow=0.85 cfs 0.070 af

Reach 13R: Roof Leader Avg. Flow Depth=0.31' Max Vel=6.33 fps Inflow=1.03 cfs 0.085 af
8.0" Round Pipe n=0.012 L=21.0' S=0.0300 '/' Capacity=2.27 cfs Outflow=1.02 cfs 0.085 af

Reach 100R: POA #1 Inflow=2.56 cfs 0.211 af
Outflow=2.56 cfs 0.211 af

Reach 200R: POA #2 Inflow=1.45 cfs 0.116 af
Outflow=1.45 cfs 0.116 af

Pond 2P: CB #25851 Peak Elev=12.31' Inflow=0.37 cfs 0.029 af
12.0" Round Culvert n=0.012 L=64.0' S=0.0127 '/' Outflow=0.37 cfs 0.029 af

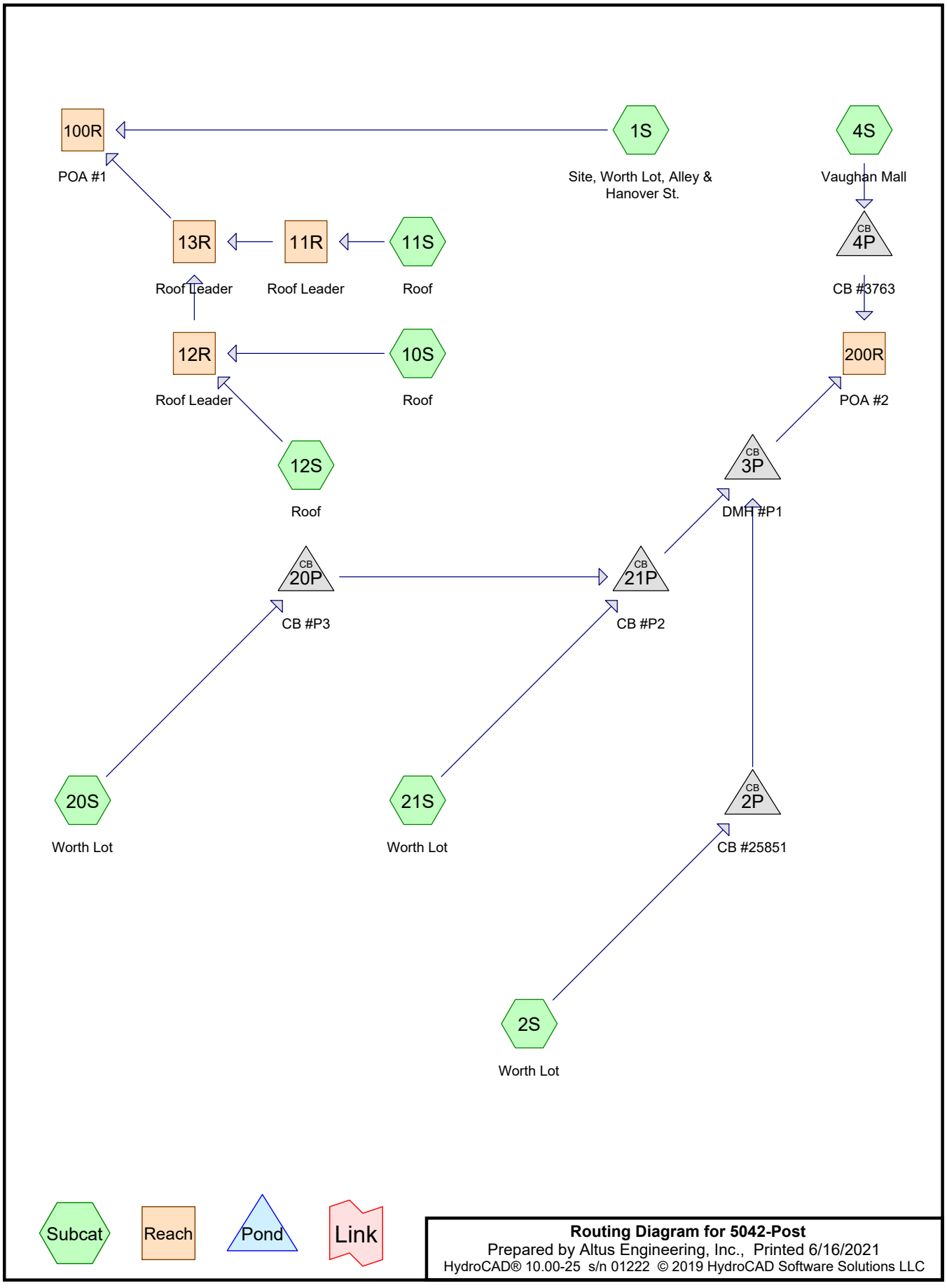
Pond 3P: DMH #P1 Peak Elev=11.74' Inflow=1.22 cfs 0.098 af
12.0" Round Culvert n=0.012 L=18.0' S=0.0100 '/' Outflow=1.22 cfs 0.098 af

Pond 4P: CB #3763 Peak Elev=12.26' Inflow=0.23 cfs 0.018 af
12.0" Round Culvert n=0.012 L=40.0' S=0.0140 '/' Outflow=0.23 cfs 0.018 af

Pond 20P: CB #P3 Peak Elev=12.24' Inflow=0.38 cfs 0.031 af
12.0" Round Culvert n=0.012 L=86.0' S=0.0050 '/' Outflow=0.38 cfs 0.031 af

Pond 21P: CB #P2 Peak Elev=11.93' Inflow=0.85 cfs 0.069 af
12.0" Round Culvert n=0.012 L=12.0' S=0.0050 '/' Outflow=0.85 cfs 0.069 af

Total Runoff Area = 1.158 ac Runoff Volume = 0.327 af Average Runoff Depth = 3.39"
2.97% Pervious = 0.034 ac 97.03% Impervious = 1.123 ac



Routing Diagram for 5042-Post
Prepared by Altus Engineering, Inc., Printed 6/16/2021

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.034	74	>75% Grass cover, Good, HSG C (1S, 2S, 4S, 11S, 20S, 21S)
0.398	98	Paved parking, HSG C (2S, 4S, 20S, 21S)
0.433	98	Paved roads w/curbs & sewers, HSG C (1S)
0.293	98	Roofs, HSG C (10S, 11S, 12S)
1.158	**97**	**TOTAL AREA**

Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Site, Worth Lot, Alley & Runoff Area=19,157 sf 98.39% Impervious Runoff Depth=5.36"
Flow Length=347' Tc=6.0 min CN=98 Runoff=2.36 cfs 0.197 af

Subcatchment 2S: Worth Lot Runoff Area=4,739 sf 91.90% Impervious Runoff Depth=5.13"
Flow Length=124' Tc=6.0 min CN=96 Runoff=0.58 cfs 0.047 af

Subcatchment 4S: Vaughan Mall Runoff Area=2,908 sf 92.61% Impervious Runoff Depth=5.13"
Flow Length=61' Tc=6.0 min CN=96 Runoff=0.35 cfs 0.029 af

Subcatchment 10S: Roof Runoff Area=8,053 sf 100.00% Impervious Runoff Depth=5.36"
Tc=6.0 min CN=98 Runoff=0.99 cfs 0.083 af

Subcatchment 11S: Roof Runoff Area=2,409 sf 88.71% Impervious Runoff Depth=5.01"
Tc=6.0 min CN=95 Runoff=0.29 cfs 0.023 af

Subcatchment 12S: Roof Runoff Area=2,555 sf 100.00% Impervious Runoff Depth=5.36"
Tc=6.0 min CN=98 Runoff=0.31 cfs 0.026 af

Subcatchment 20S: Worth Lot Runoff Area=4,709 sf 99.17% Impervious Runoff Depth=5.36"
Flow Length=100' Tc=6.0 min CN=98 Runoff=0.58 cfs 0.048 af

Subcatchment 21S: Worth Lot Runoff Area=5,891 sf 95.25% Impervious Runoff Depth=5.25"
Flow Length=105' Tc=6.0 min CN=97 Runoff=0.72 cfs 0.059 af

Reach 11R: Roof Leader Avg. Flow Depth=0.24' Max Vel=3.06 fps Inflow=0.29 cfs 0.023 af
6.0" Round Pipe n=0.012 L=94.0' S=0.0100 '/' Capacity=0.61 cfs Outflow=0.28 cfs 0.023 af

Reach 12R: Roof Leader Avg. Flow Depth=0.36' Max Vel=6.72 fps Inflow=1.30 cfs 0.109 af
8.0" Round Pipe n=0.012 L=113.0' S=0.0300 '/' Capacity=2.27 cfs Outflow=1.29 cfs 0.109 af

Reach 13R: Roof Leader Avg. Flow Depth=0.41' Max Vel=7.02 fps Inflow=1.58 cfs 0.132 af
8.0" Round Pipe n=0.012 L=21.0' S=0.0300 '/' Capacity=2.27 cfs Outflow=1.57 cfs 0.132 af

Reach 100R: POA #1 Inflow=3.92 cfs 0.328 af
Outflow=3.92 cfs 0.328 af

Reach 200R: POA #2 Inflow=2.23 cfs 0.182 af
Outflow=2.23 cfs 0.182 af

Pond 2P: CB #25851 Peak Elev=12.39' Inflow=0.58 cfs 0.047 af
12.0" Round Culvert n=0.012 L=64.0' S=0.0127 '/' Outflow=0.58 cfs 0.047 af

Pond 3P: DMH #P1 Peak Elev=11.93' Inflow=1.87 cfs 0.154 af
12.0" Round Culvert n=0.012 L=18.0' S=0.0100 '/' Outflow=1.87 cfs 0.154 af

Pond 4P: CB #3763 Peak Elev=12.32' Inflow=0.35 cfs 0.029 af
12.0" Round Culvert n=0.012 L=40.0' S=0.0140 '/' Outflow=0.35 cfs 0.029 af

Pond 20P: CB #P3 Peak Elev=12.32' Inflow=0.58 cfs 0.048 af
12.0" Round Culvert n=0.012 L=86.0' S=0.0050 '/' Outflow=0.58 cfs 0.048 af

Pond 21P: CB #P2 Peak Elev=12.09' Inflow=1.30 cfs 0.107 af
12.0" Round Culvert n=0.012 L=12.0' S=0.0050 '/' Outflow=1.30 cfs 0.107 af

Total Runoff Area = 1.158 ac Runoff Volume = 0.511 af Average Runoff Depth = 5.30"
2.97% Pervious = 0.034 ac 97.03% Impervious = 1.123 ac

Summary for Subcatchment 1S: Site, Worth Lot, Alley & Hanover St.

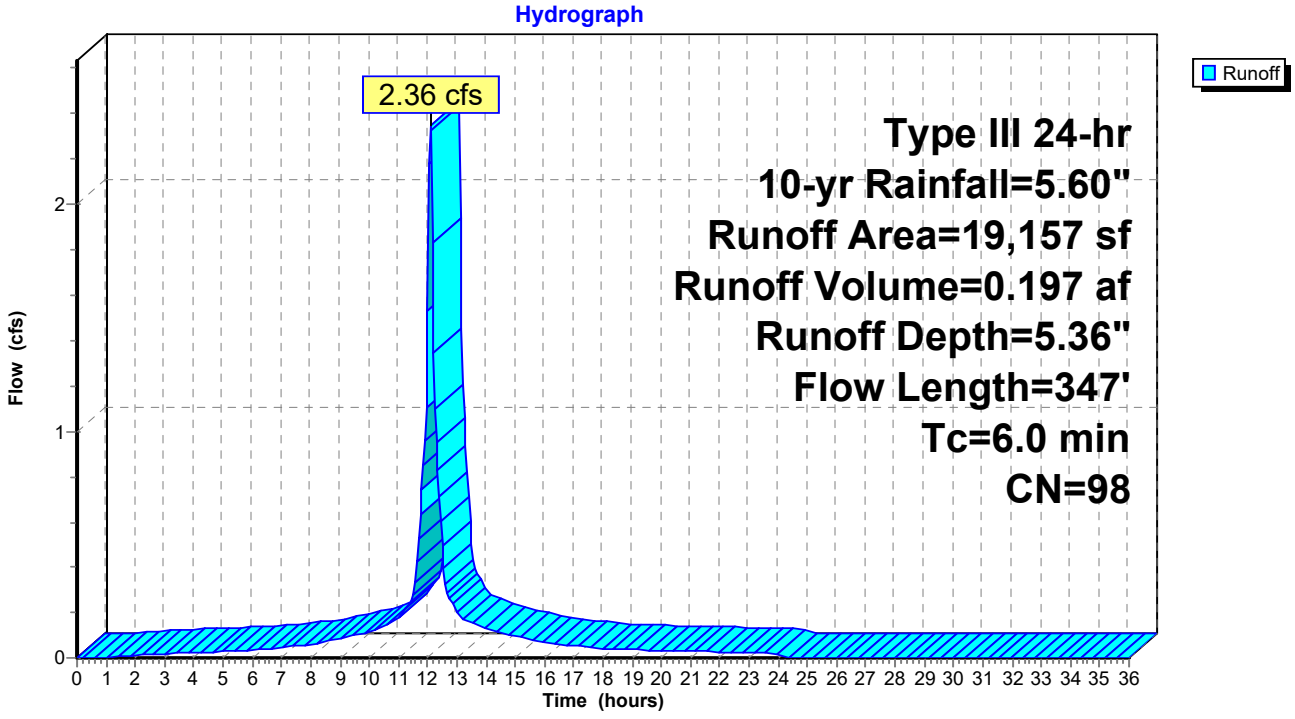
Runoff = 2.36 cfs @ 12.09 hrs, Volume= 0.197 af, Depth= 5.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.60"

Area (sf)	CN	Description
308	74	>75% Grass cover, Good, HSG C
18,849	98	Paved roads w/curbs & sewers, HSG C
19,157	98	Weighted Average
308		1.61% Pervious Area
18,849		98.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	29	0.0200	1.15		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.69"
2.0	318	0.0171	2.65		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.4	347	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 1S: Site, Worth Lot, Alley & Hanover St.



Summary for Subcatchment 2S: Worth Lot

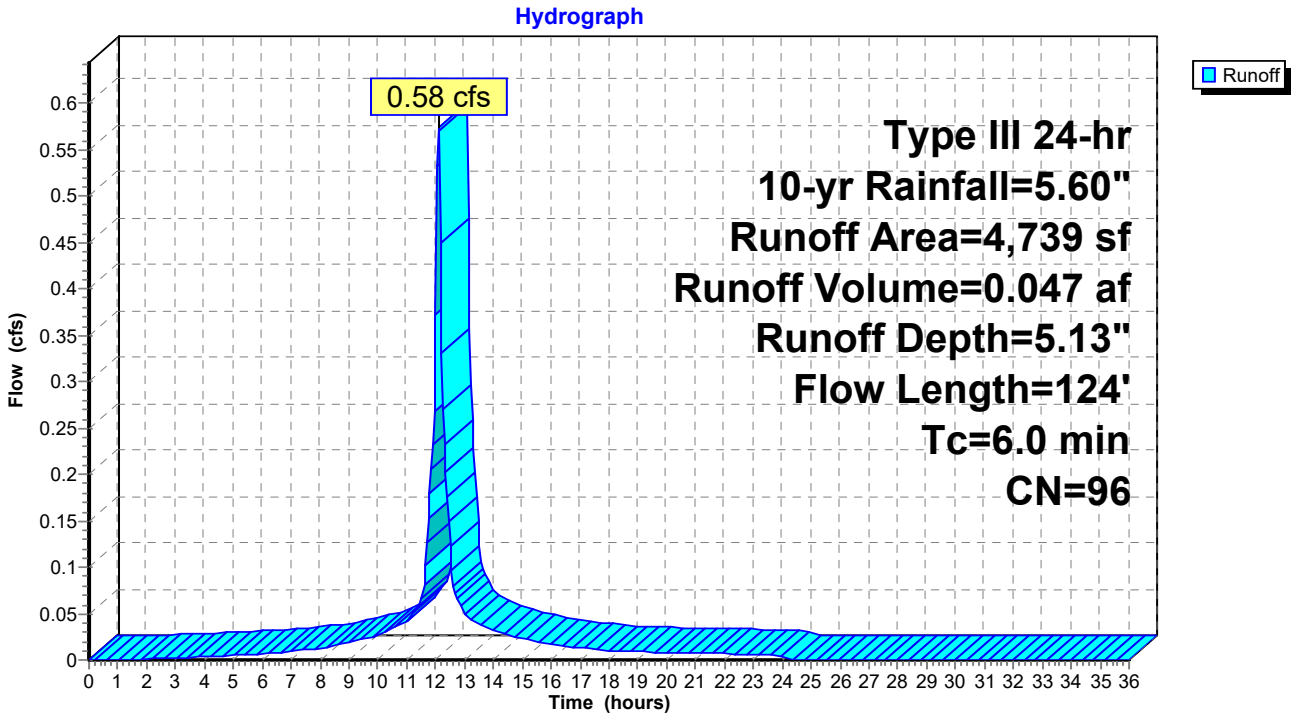
Runoff = 0.58 cfs @ 12.09 hrs, Volume= 0.047 af, Depth= 5.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.60"

Area (sf)	CN	Description
384	74	>75% Grass cover, Good, HSG C
4,355	98	Paved parking, HSG C
4,739	96	Weighted Average
384		8.10% Pervious Area
4,355		91.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	30	0.0150	1.03		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.69"
0.2	45	0.0281	3.40		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.3	49	0.0240	3.14		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.0	124	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 2S: Worth Lot



Summary for Subcatchment 4S: Vaughan Mall

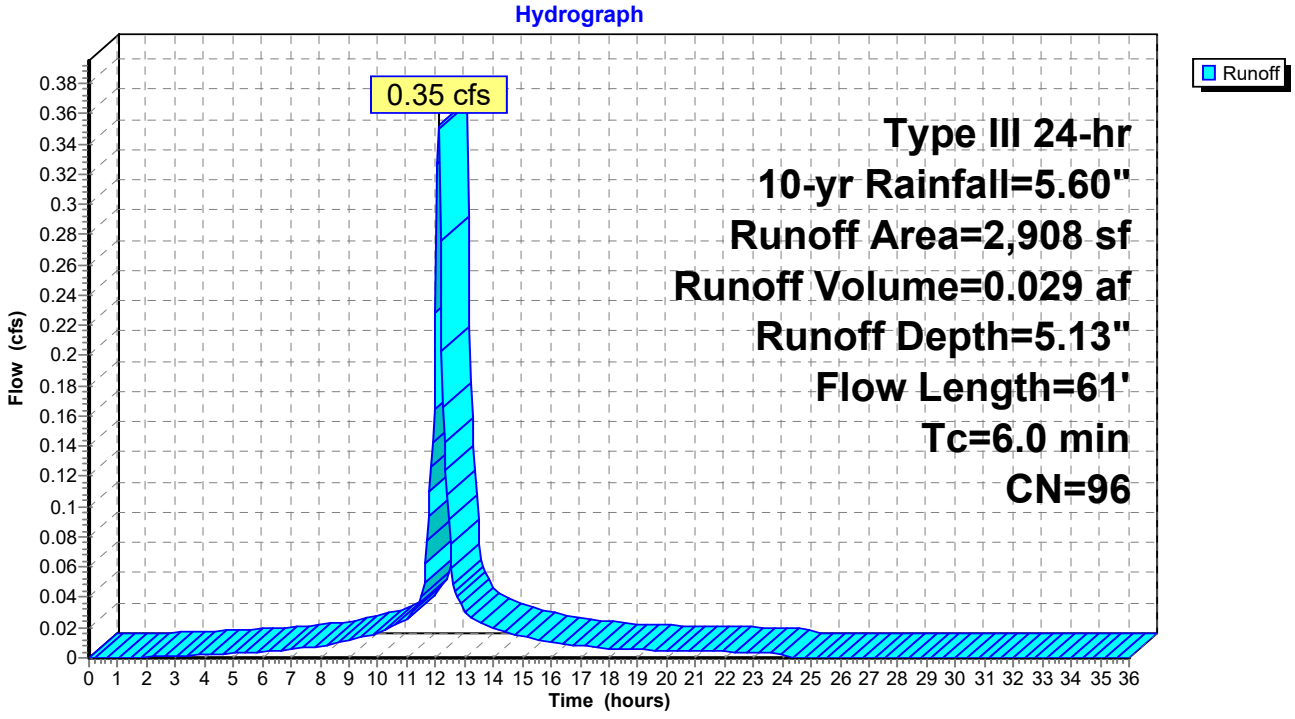
Runoff = 0.35 cfs @ 12.09 hrs, Volume= 0.029 af, Depth= 5.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.60"

Area (sf)	CN	Description
215	74	>75% Grass cover, Good, HSG C
2,693	98	Paved parking, HSG C
2,908	96	Weighted Average
215		7.39% Pervious Area
2,693		92.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	30	0.0097	0.87		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.69"
0.3	31	0.0093	1.96		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.9	61	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 4S: Vaughan Mall



Summary for Subcatchment 10S: Roof

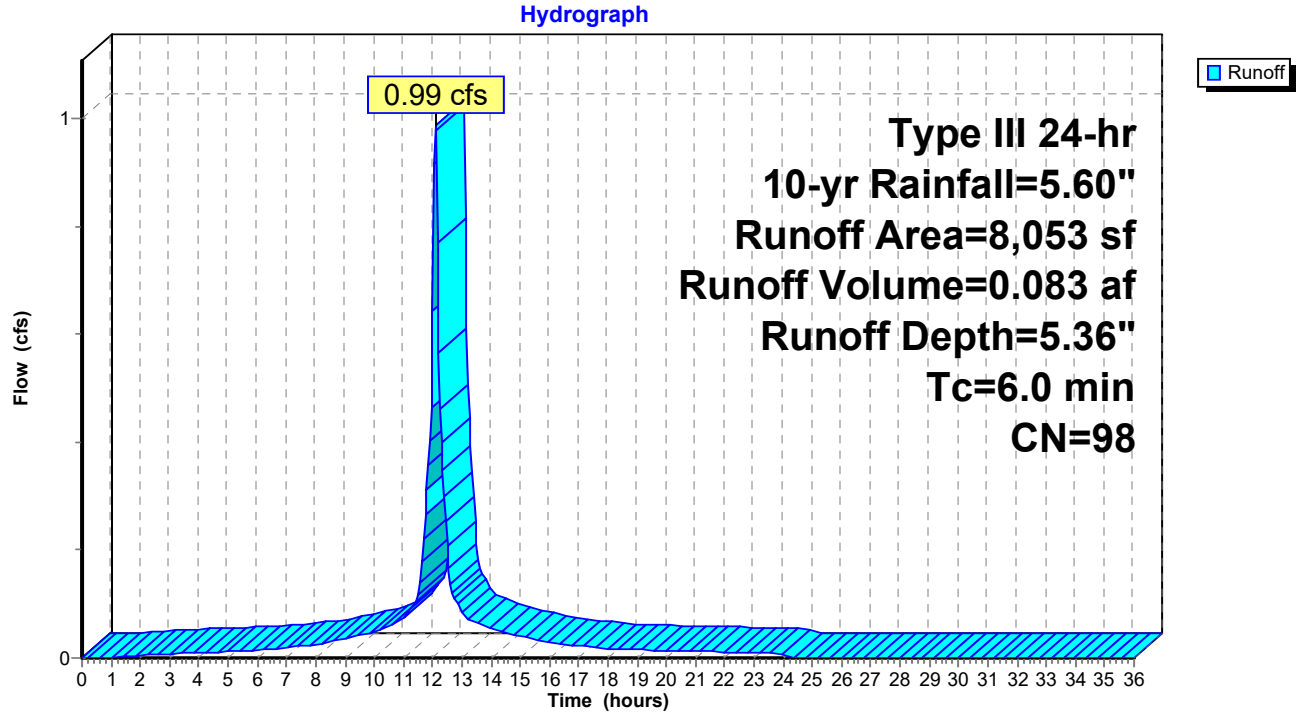
Runoff = 0.99 cfs @ 12.09 hrs, Volume= 0.083 af, Depth= 5.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.60"

Area (sf)	CN	Description
8,053	98	Roofs, HSG C
8,053		100.00% Impervious Area

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

Subcatchment 10S: Roof



Summary for Subcatchment 11S: Roof

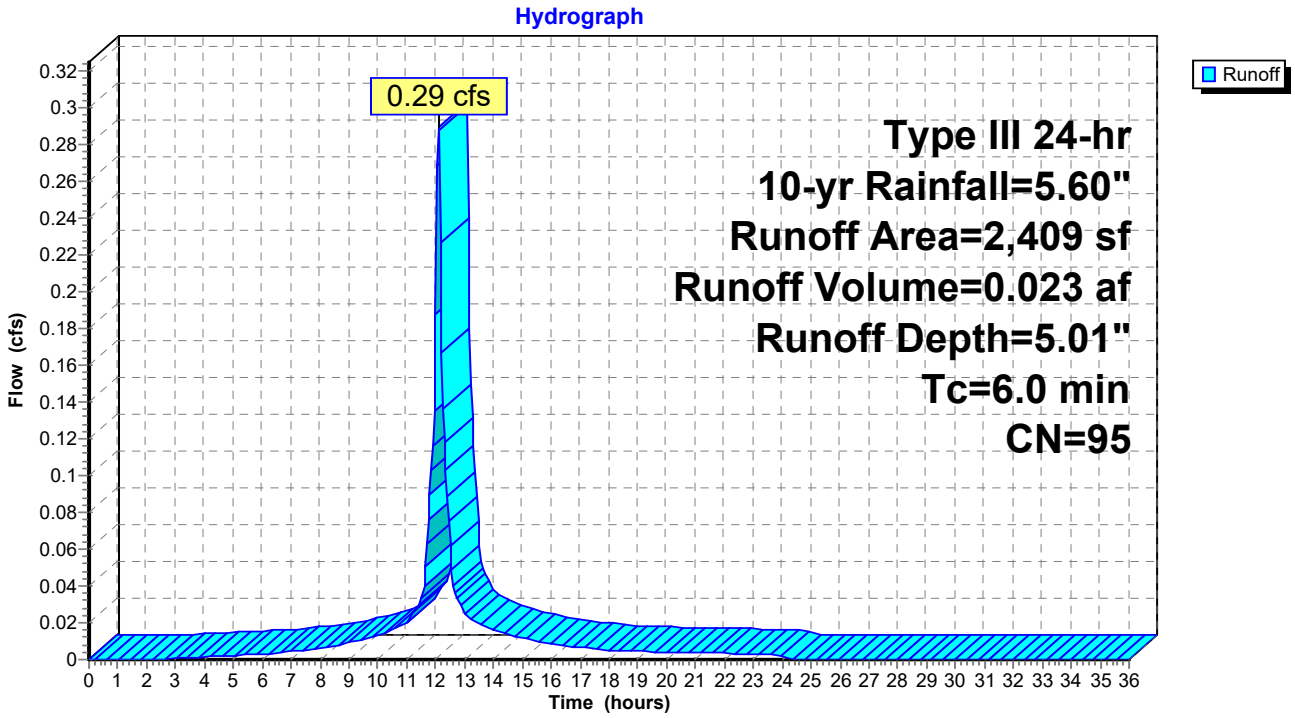
Runoff = 0.29 cfs @ 12.09 hrs, Volume= 0.023 af, Depth= 5.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.60"

Area (sf)	CN	Description
272	74	>75% Grass cover, Good, HSG C
2,137	98	Roofs, HSG C
2,409	95	Weighted Average
272		11.29% Pervious Area
2,137		88.71% Impervious Area

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

Subcatchment 11S: Roof



Summary for Subcatchment 12S: Roof

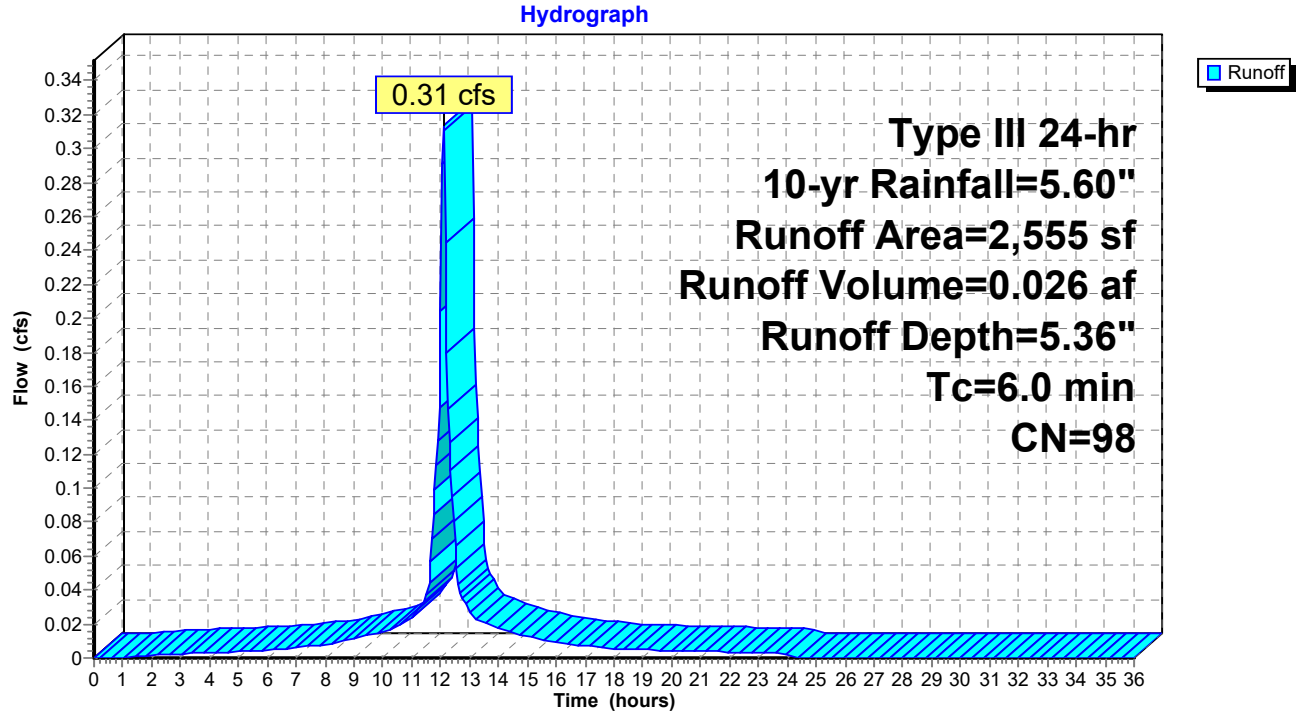
Runoff = 0.31 cfs @ 12.09 hrs, Volume= 0.026 af, Depth= 5.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.60"

Area (sf)	CN	Description
2,555	98	Roofs, HSG C
2,555		100.00% Impervious Area

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

Subcatchment 12S: Roof



Summary for Subcatchment 20S: Worth Lot

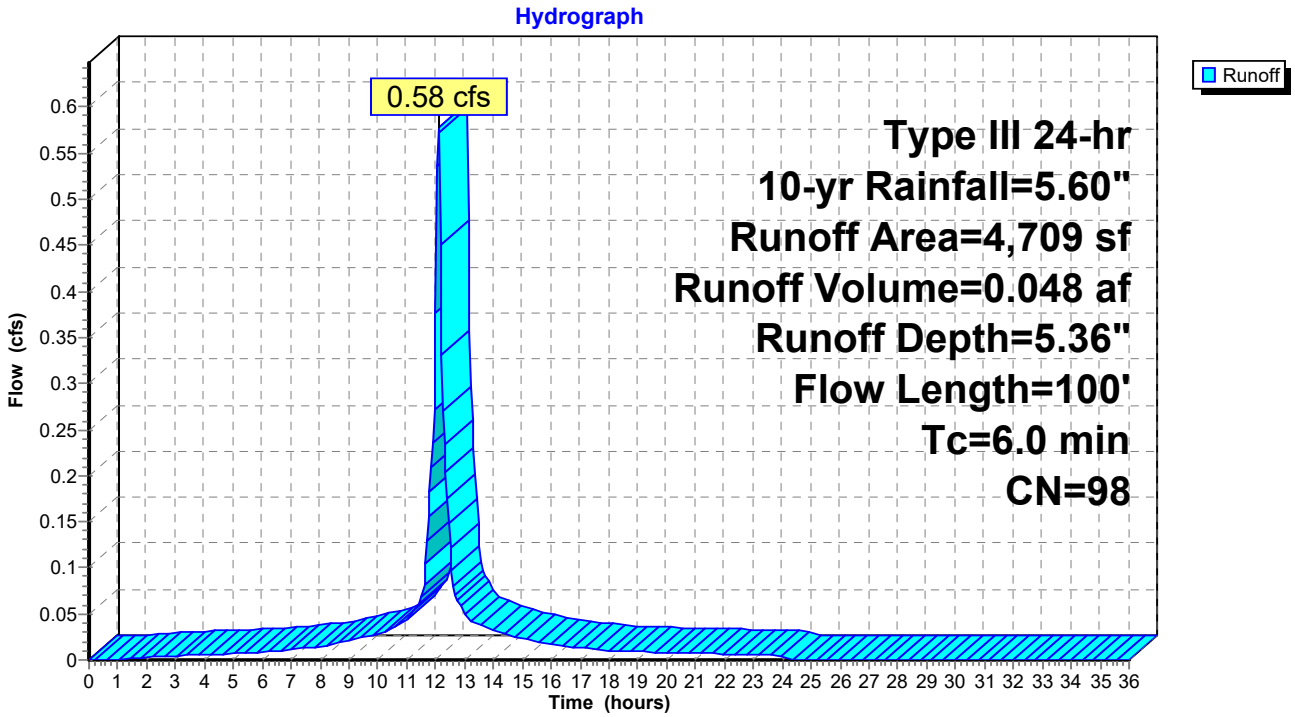
Runoff = 0.58 cfs @ 12.09 hrs, Volume= 0.048 af, Depth= 5.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.60"

Area (sf)	CN	Description
39	74	>75% Grass cover, Good, HSG C
4,670	98	Paved parking, HSG C
4,709	98	Weighted Average
39		0.83% Pervious Area
4,670		99.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	24	0.0100	0.84		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.69"
0.5	59	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	17	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.1	100	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 20S: Worth Lot



Summary for Subcatchment 21S: Worth Lot

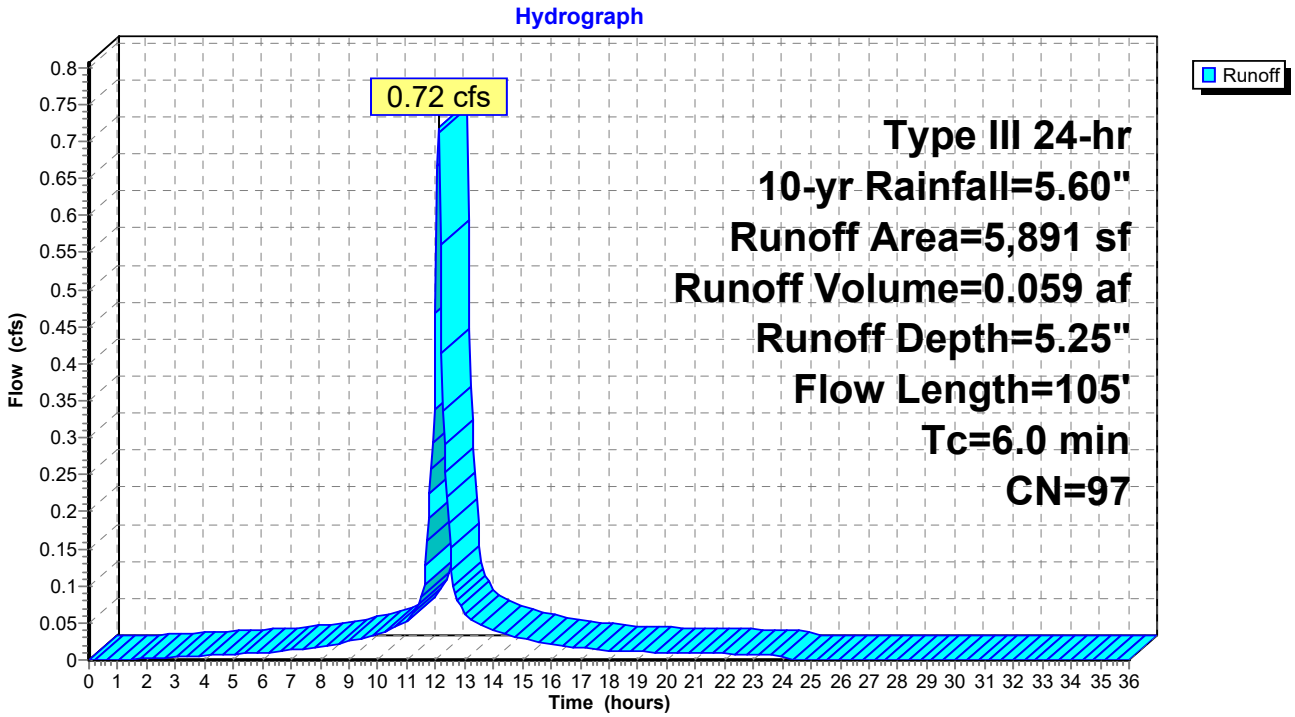
Runoff = 0.72 cfs @ 12.09 hrs, Volume= 0.059 af, Depth= 5.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.60"

Area (sf)	CN	Description
280	74	>75% Grass cover, Good, HSG C
5,611	98	Paved parking, HSG C
5,891	97	Weighted Average
280		4.75% Pervious Area
5,611		95.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	30	0.0100	0.88		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.69"
0.2	40	0.0180	2.72		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.3	35	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.1	105	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 21S: Worth Lot



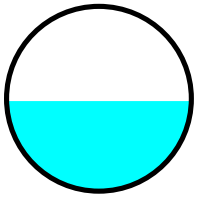
Summary for Reach 11R: Roof Leader

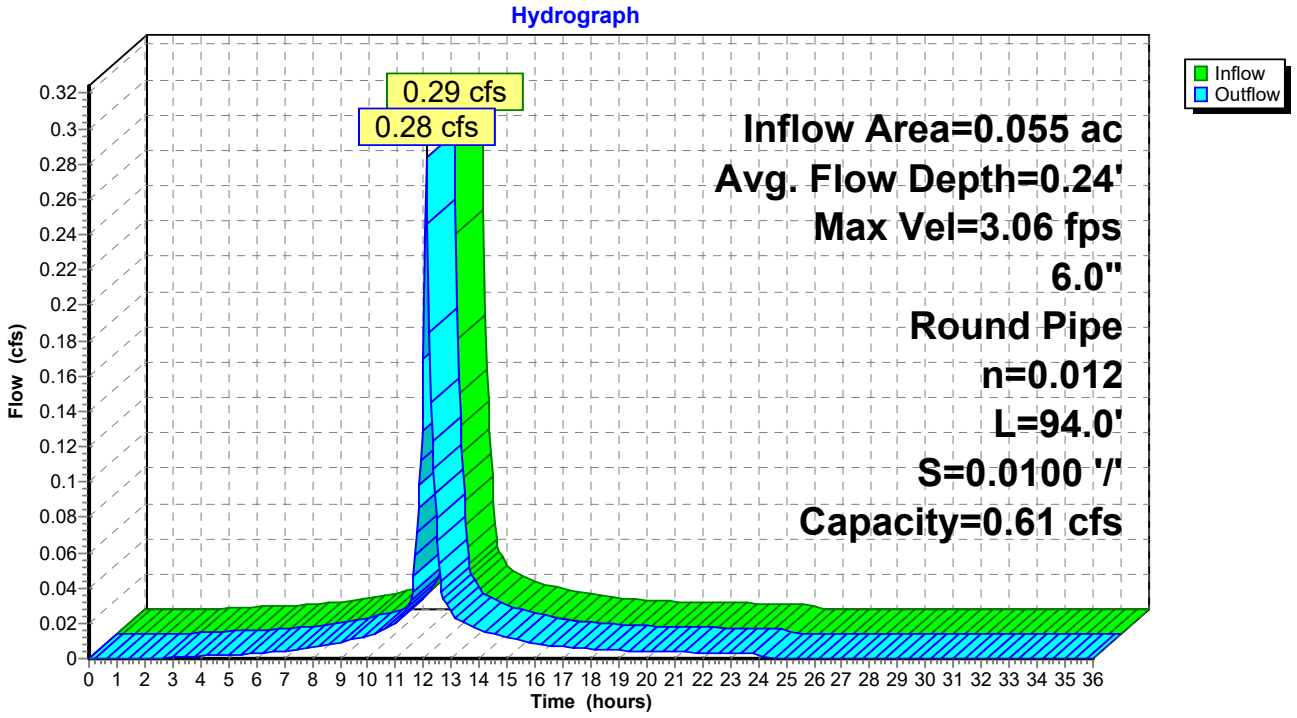
Inflow Area = 0.055 ac, 88.71% Impervious, Inflow Depth = 5.01" for 10-yr event
Inflow = 0.29 cfs @ 12.09 hrs, Volume= 0.023 af
Outflow = 0.28 cfs @ 12.10 hrs, Volume= 0.023 af, Atten= 2%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.06 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.03 fps, Avg. Travel Time= 1.5 min

Peak Storage= 9 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.24'
Bank-Full Depth= 0.50' Flow Area= 0.2 sf, Capacity= 0.61 cfs

6.0" Round Pipe
n= 0.012
Length= 94.0' Slope= 0.0100 '/'
Inlet Invert= 9.10', Outlet Invert= 8.16'





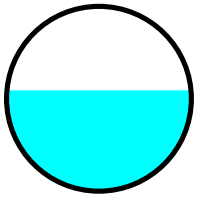
Summary for Reach 12R: Roof Leader

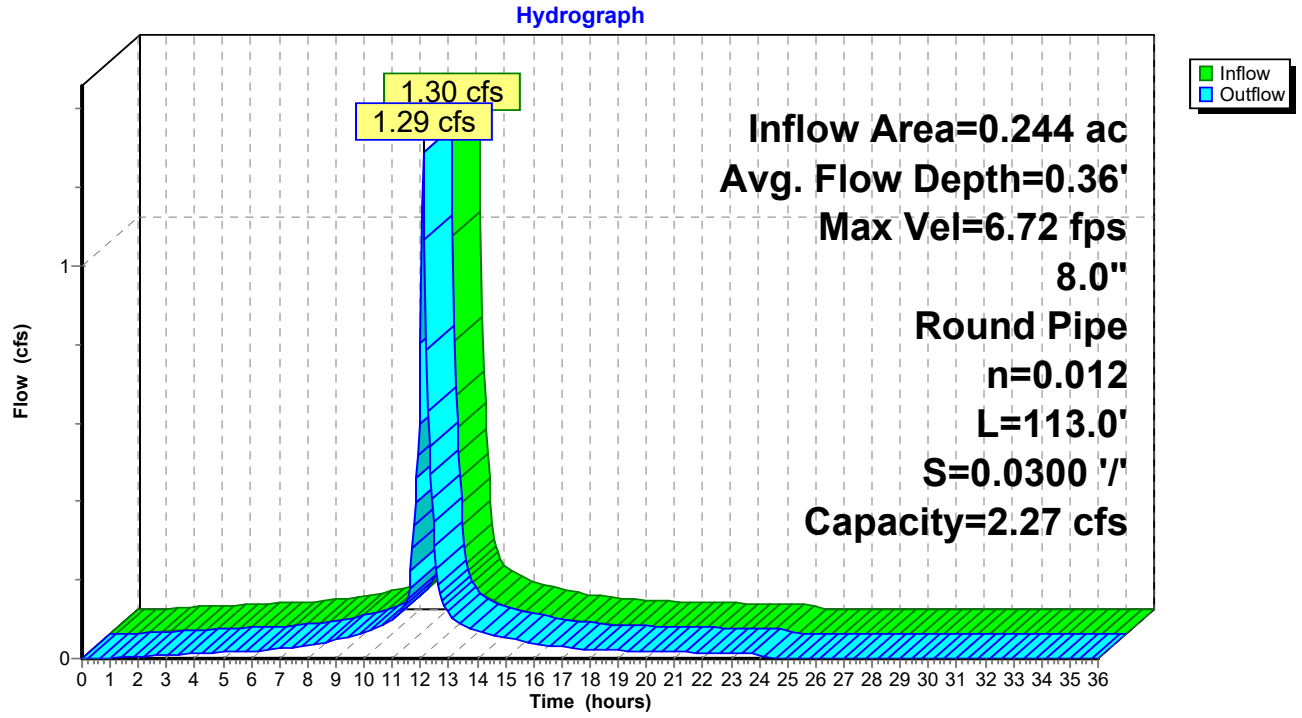
Inflow Area = 0.244 ac,100.00% Impervious, Inflow Depth = 5.36" for 10-yr event
Inflow = 1.30 cfs @ 12.09 hrs, Volume= 0.109 af
Outflow = 1.29 cfs @ 12.09 hrs, Volume= 0.109 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.72 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.31 fps, Avg. Travel Time= 0.8 min

Peak Storage= 22 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.36'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 2.27 cfs

8.0" Round Pipe
n= 0.012
Length= 113.0' Slope= 0.0300 '/'
Inlet Invert= 11.47', Outlet Invert= 8.08'





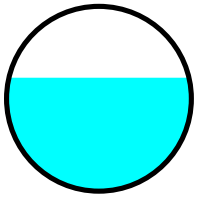
Summary for Reach 13R: Roof Leader

Inflow Area = 0.299 ac, 97.91% Impervious, Inflow Depth = 5.30" for 10-yr event
Inflow = 1.58 cfs @ 12.10 hrs, Volume= 0.132 af
Outflow = 1.57 cfs @ 12.10 hrs, Volume= 0.132 af, Atten= 0%, Lag= 0.1 min

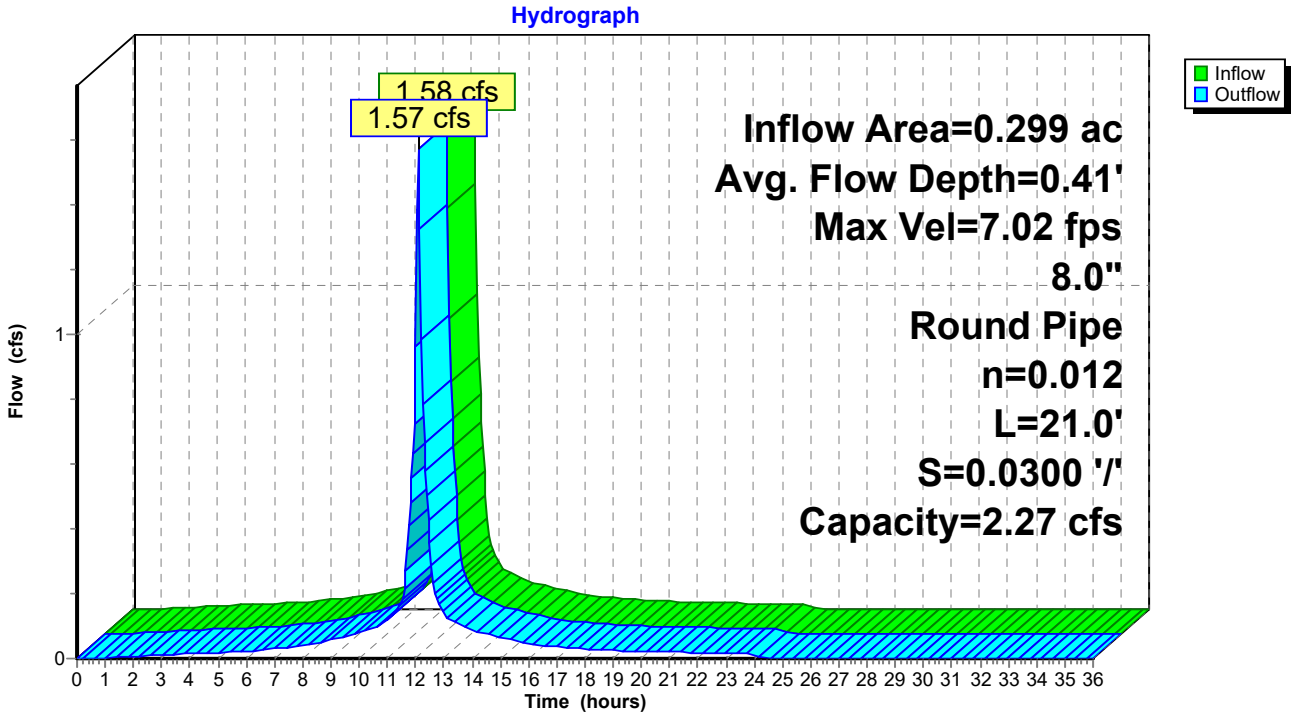
Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.02 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.43 fps, Avg. Travel Time= 0.1 min

Peak Storage= 5 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.41'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 2.27 cfs

8.0" Round Pipe
n= 0.012
Length= 21.0' Slope= 0.0300 '/'
Inlet Invert= 8.08', Outlet Invert= 7.45'



Reach 13R: Roof Leader

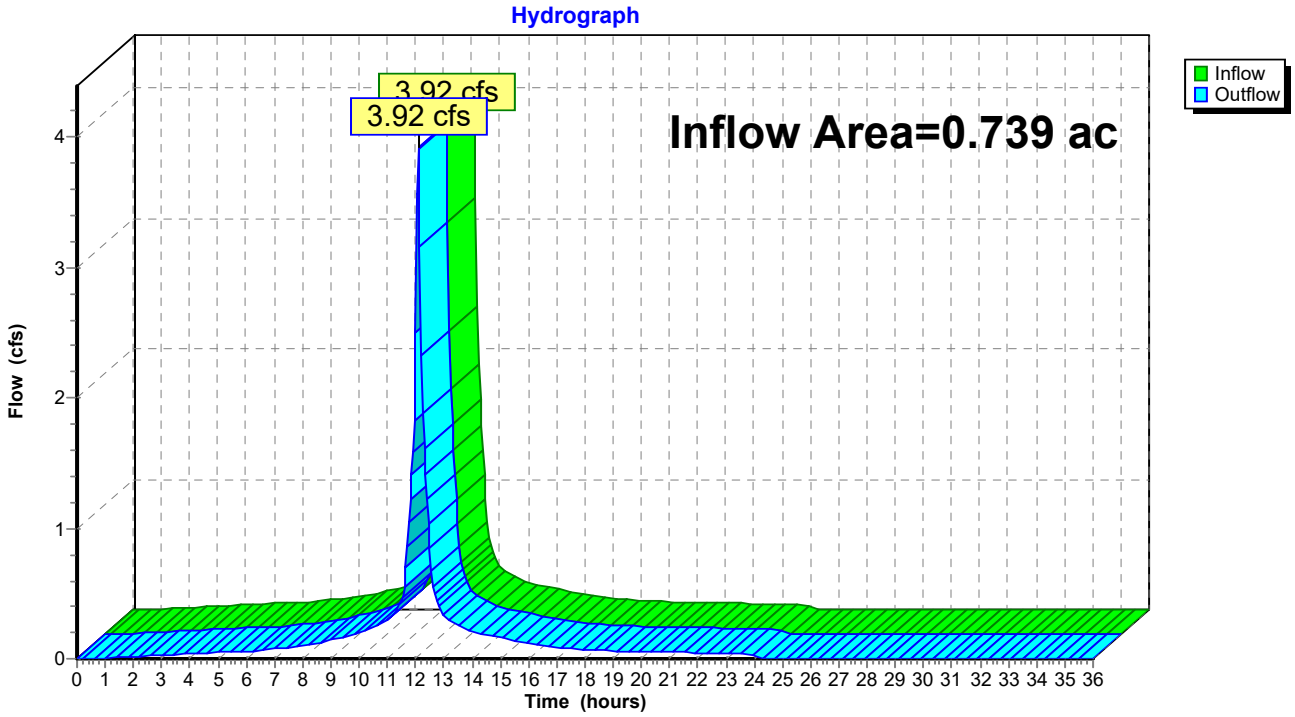


Summary for Reach 100R: POA #1

Inflow Area = 0.739 ac, 98.20% Impervious, Inflow Depth = 5.34" for 10-yr event
Inflow = 3.92 cfs @ 12.09 hrs, Volume= 0.328 af
Outflow = 3.92 cfs @ 12.09 hrs, Volume= 0.328 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Reach 100R: POA #1

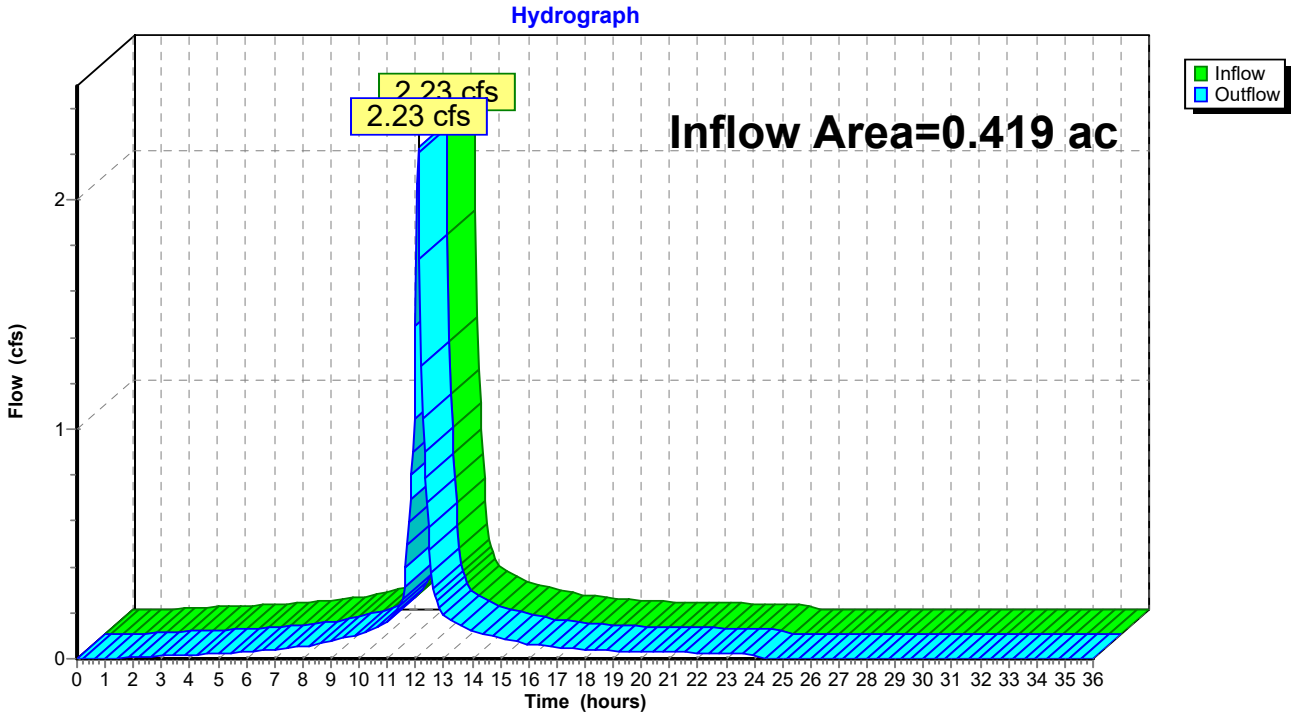


Summary for Reach 200R: POA #2

Inflow Area = 0.419 ac, 94.97% Impervious, Inflow Depth = 5.23" for 10-yr event
Inflow = 2.23 cfs @ 12.09 hrs, Volume= 0.182 af
Outflow = 2.23 cfs @ 12.09 hrs, Volume= 0.182 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs

Reach 200R: POA #2



Summary for Pond 2P: CB #25851

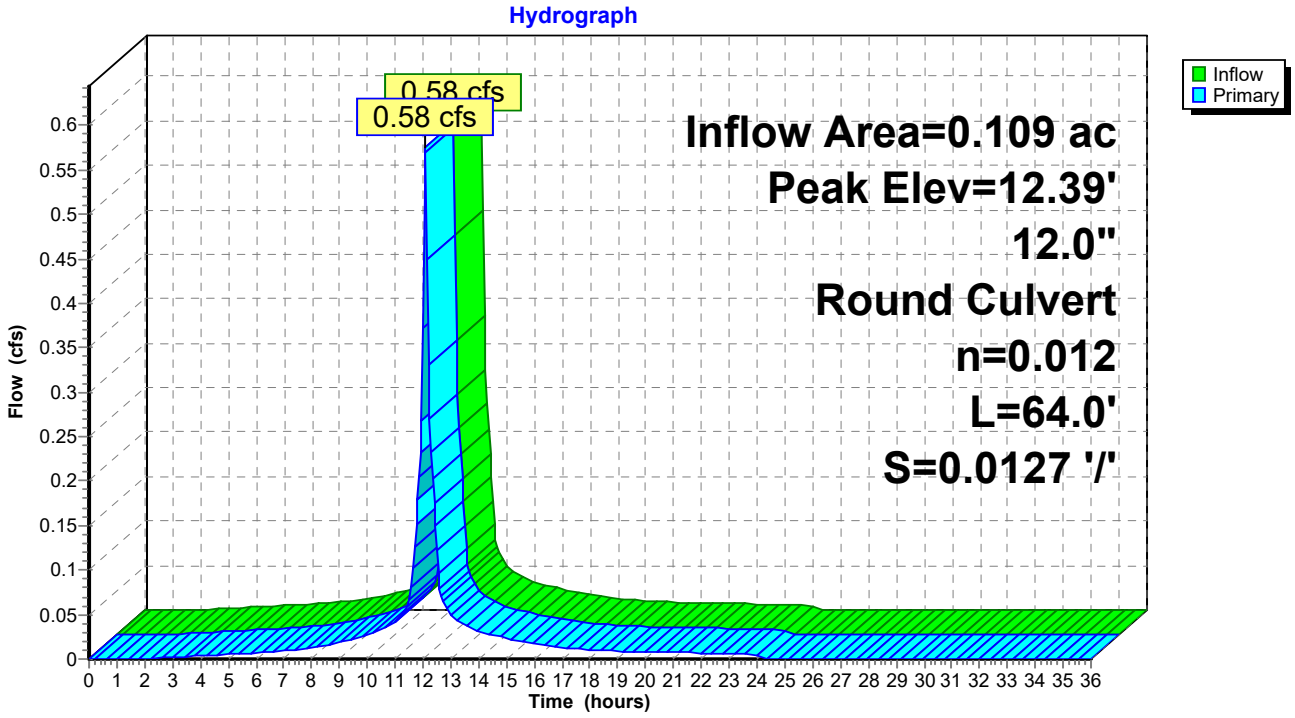
Inflow Area = 0.109 ac, 91.90% Impervious, Inflow Depth = 5.13" for 10-yr event
Inflow = 0.58 cfs @ 12.09 hrs, Volume= 0.047 af
Outflow = 0.58 cfs @ 12.09 hrs, Volume= 0.047 af, Atten= 0%, Lag= 0.0 min
Primary = 0.58 cfs @ 12.09 hrs, Volume= 0.047 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 12.39' @ 12.09 hrs
Flood Elev= 16.26'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.01'	**12.0" Round Culvert** L= 64.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 12.01' / 11.20' S= 0.0127 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.56 cfs @ 12.09 hrs HW=12.38' (Free Discharge)
1=Culvert (Inlet Controls 0.56 cfs @ 2.08 fps)

Pond 2P: CB #25851



Summary for Pond 3P: DMH #P1

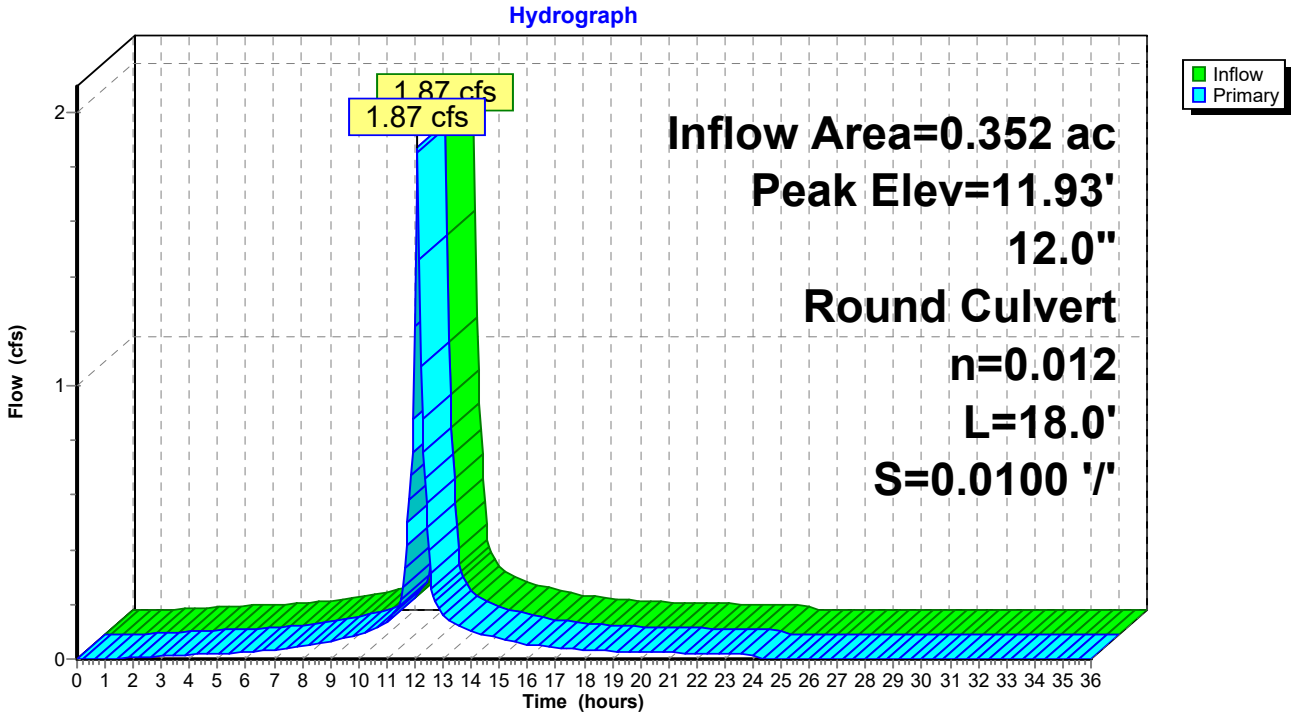
Inflow Area = 0.352 ac, 95.42% Impervious, Inflow Depth = 5.25" for 10-yr event
Inflow = 1.87 cfs @ 12.09 hrs, Volume= 0.154 af
Outflow = 1.87 cfs @ 12.09 hrs, Volume= 0.154 af, Atten= 0%, Lag= 0.0 min
Primary = 1.87 cfs @ 12.09 hrs, Volume= 0.154 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 11.93' @ 12.09 hrs
Flood Elev= 15.45'

Device	Routing	Invert	Outlet Devices
#1	Primary	11.10'	**12.0" Round Culvert** L= 18.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 11.10' / 10.92' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.82 cfs @ 12.09 hrs HW=11.92' (Free Discharge)
1=Culvert (Barrel Controls 1.82 cfs @ 3.60 fps)

Pond 3P: DMH #P1



Summary for Pond 4P: CB #3763

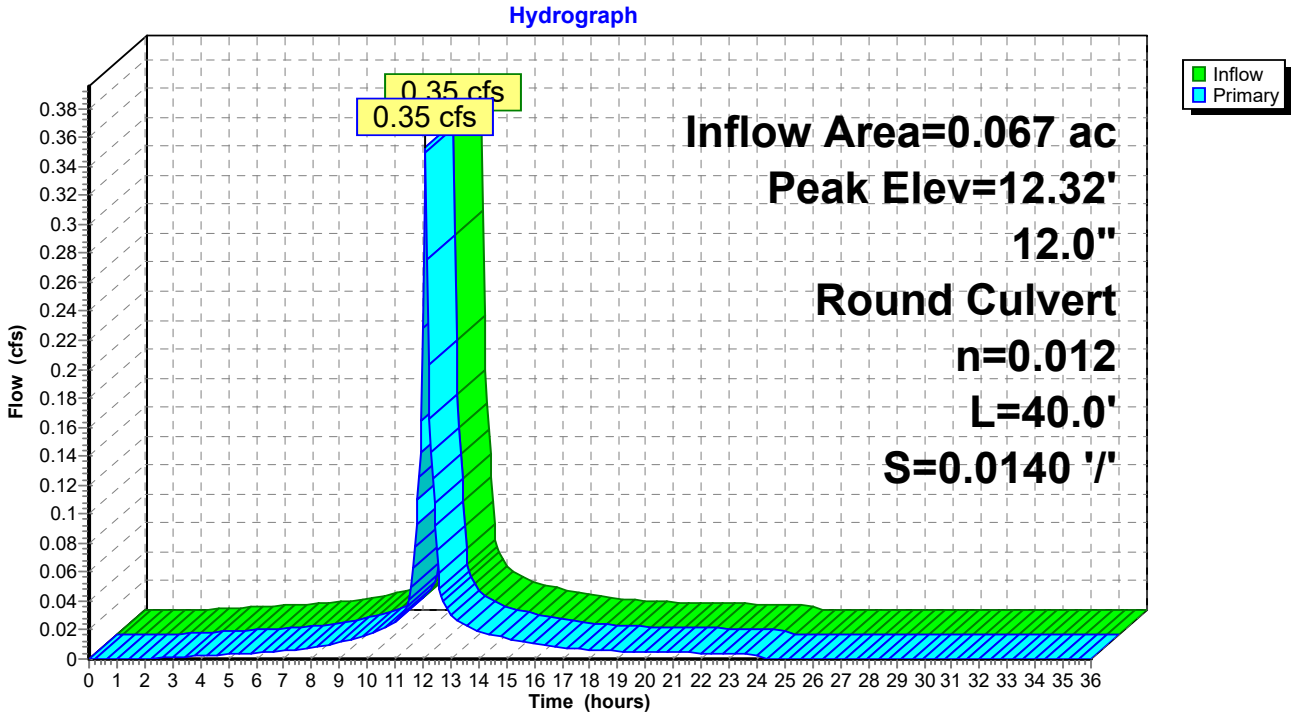
Inflow Area = 0.067 ac, 92.61% Impervious, Inflow Depth = 5.13" for 10-yr event
Inflow = 0.35 cfs @ 12.09 hrs, Volume= 0.029 af
Outflow = 0.35 cfs @ 12.09 hrs, Volume= 0.029 af, Atten= 0%, Lag= 0.0 min
Primary = 0.35 cfs @ 12.09 hrs, Volume= 0.029 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 12.32' @ 12.09 hrs
Flood Elev= 14.71'

Device	Routing	Invert	Outlet Devices
#1	Primary	12.03'	**12.0" Round Culvert** L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 12.03' / 11.47' S= 0.0140 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.34 cfs @ 12.09 hrs HW=12.32' (Free Discharge)
1=Culvert (Inlet Controls 0.34 cfs @ 1.83 fps)

Pond 4P: CB #3763



Summary for Pond 20P: CB #P3

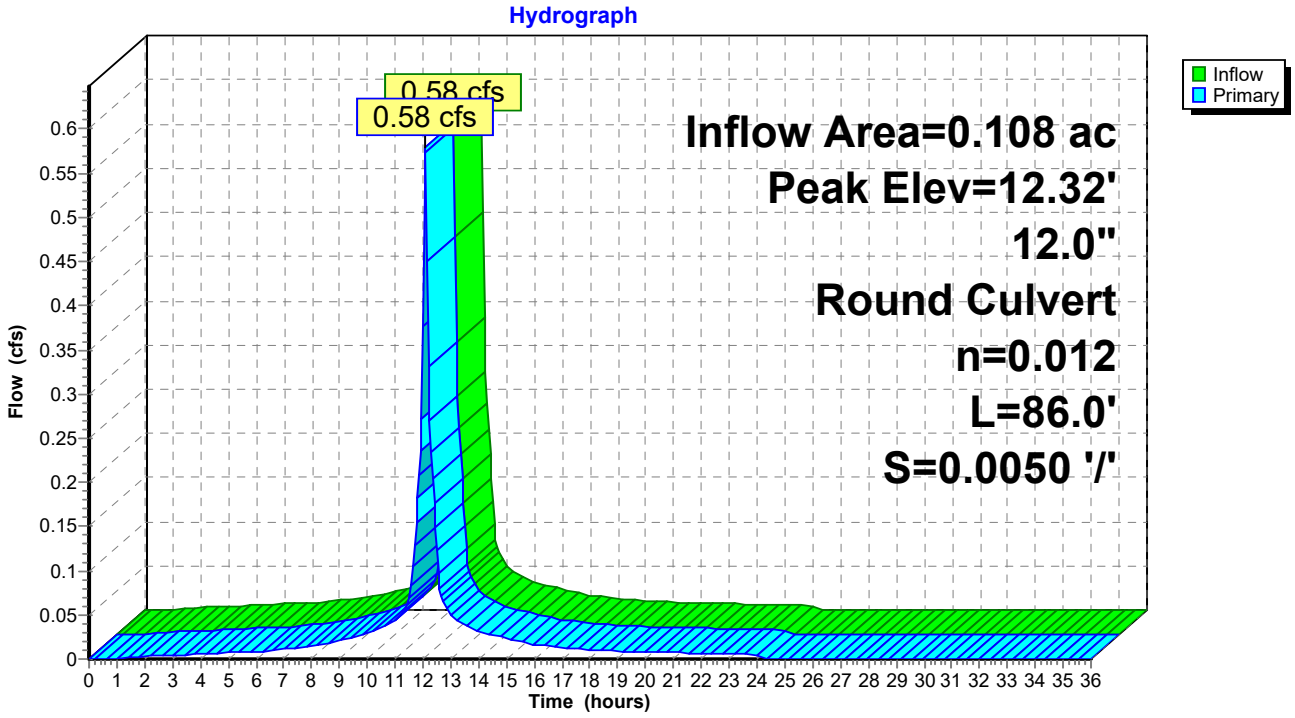
Inflow Area = 0.108 ac, 99.17% Impervious, Inflow Depth = 5.36" for 10-yr event
Inflow = 0.58 cfs @ 12.09 hrs, Volume= 0.048 af
Outflow = 0.58 cfs @ 12.09 hrs, Volume= 0.048 af, Atten= 0%, Lag= 0.0 min
Primary = 0.58 cfs @ 12.09 hrs, Volume= 0.048 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 12.32' @ 12.09 hrs
Flood Elev= 15.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	11.89'	**12.0" Round Culvert** L= 86.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 11.89' / 11.46' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.56 cfs @ 12.09 hrs HW=12.32' (Free Discharge)
1=Culvert (Barrel Controls 0.56 cfs @ 2.61 fps)

Pond 20P: CB #P3



Summary for Pond 21P: CB #P2

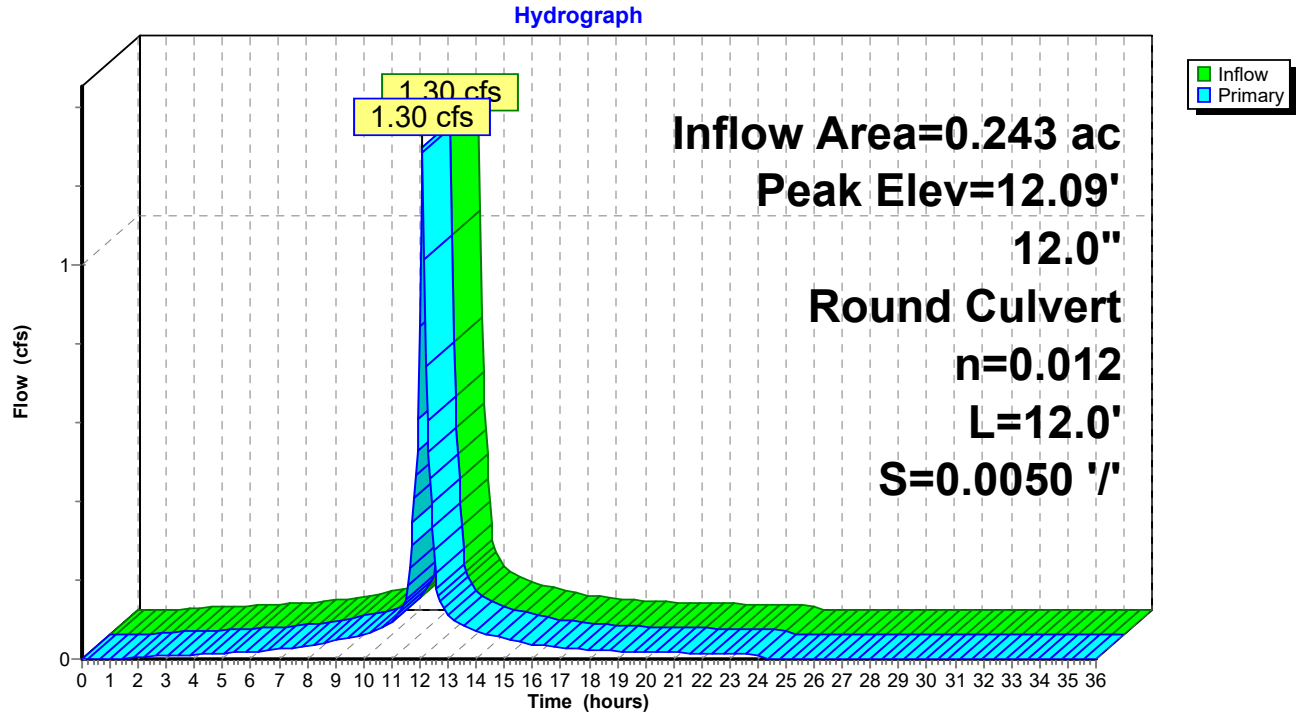
Inflow Area = 0.243 ac, 96.99% Impervious, Inflow Depth = 5.30" for 10-yr event
Inflow = 1.30 cfs @ 12.09 hrs, Volume= 0.107 af
Outflow = 1.30 cfs @ 12.09 hrs, Volume= 0.107 af, Atten= 0%, Lag= 0.0 min
Primary = 1.30 cfs @ 12.09 hrs, Volume= 0.107 af

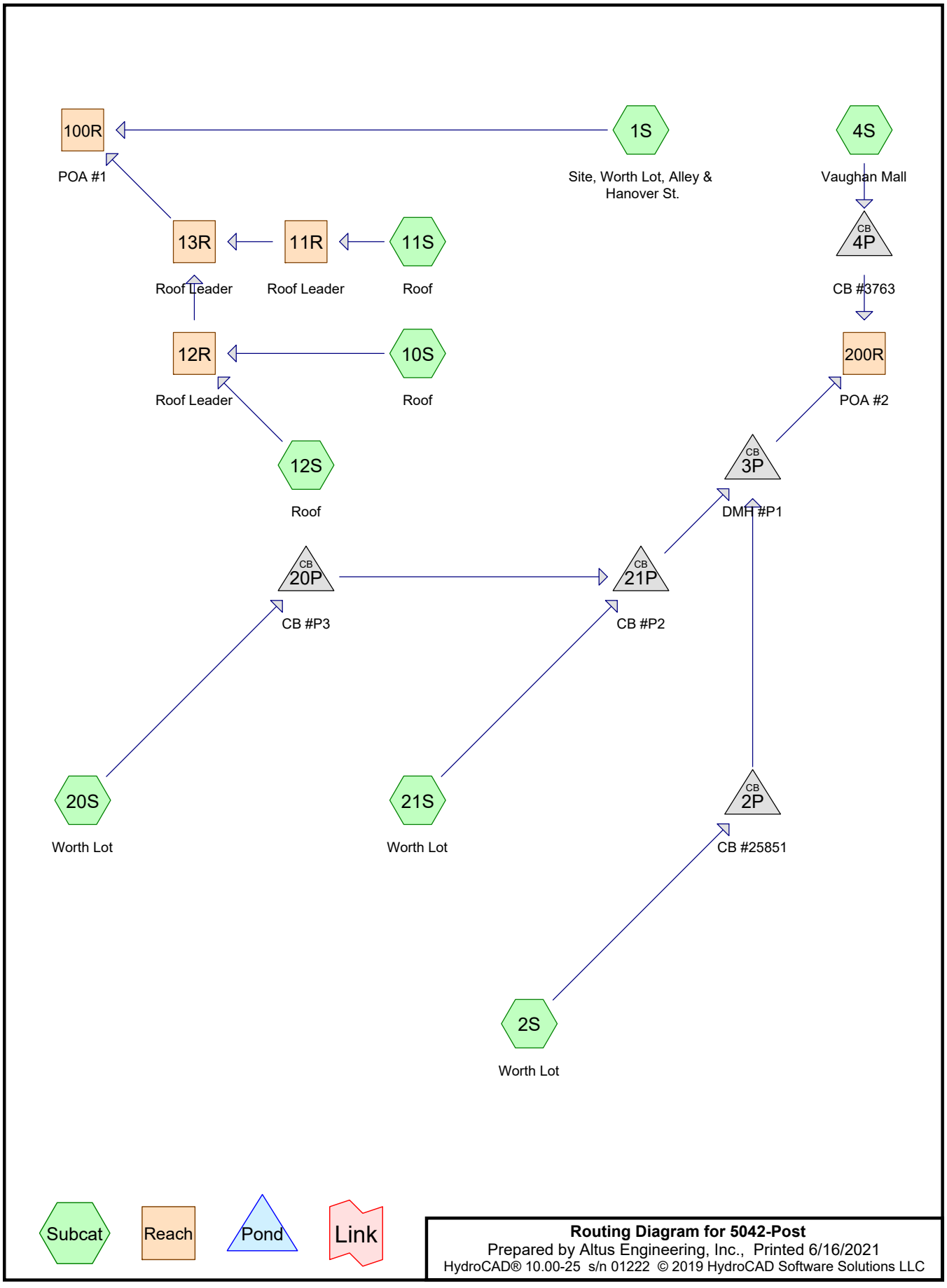
Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 12.09' @ 12.09 hrs
Flood Elev= 15.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	11.36'	**12.0" Round Culvert** L= 12.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 11.36' / 11.30' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.26 cfs @ 12.09 hrs HW=12.08' (Free Discharge)
1=Culvert (Barrel Controls 1.26 cfs @ 2.93 fps)

Pond 21P: CB #P2





Routing Diagram for 5042-Post
Prepared by Altus Engineering, Inc., Printed 6/16/2021

Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Site, Worth Lot, Alley & Runoff Area=19,157 sf 98.39% Impervious Runoff Depth=6.86"
Flow Length=347' Tc=6.0 min CN=98 Runoff=2.99 cfs 0.251 af

Subcatchment 2S: Worth Lot Runoff Area=4,739 sf 91.90% Impervious Runoff Depth=6.62"
Flow Length=124' Tc=6.0 min CN=96 Runoff=0.73 cfs 0.060 af

Subcatchment 4S: Vaughan Mall Runoff Area=2,908 sf 92.61% Impervious Runoff Depth=6.62"
Flow Length=61' Tc=6.0 min CN=96 Runoff=0.45 cfs 0.037 af

Subcatchment 10S: Roof Runoff Area=8,053 sf 100.00% Impervious Runoff Depth=6.86"
Tc=6.0 min CN=98 Runoff=1.26 cfs 0.106 af

Subcatchment 11S: Roof Runoff Area=2,409 sf 88.71% Impervious Runoff Depth=6.51"
Tc=6.0 min CN=95 Runoff=0.37 cfs 0.030 af

Subcatchment 12S: Roof Runoff Area=2,555 sf 100.00% Impervious Runoff Depth=6.86"
Tc=6.0 min CN=98 Runoff=0.40 cfs 0.034 af

Subcatchment 20S: Worth Lot Runoff Area=4,709 sf 99.17% Impervious Runoff Depth=6.86"
Flow Length=100' Tc=6.0 min CN=98 Runoff=0.74 cfs 0.062 af

Subcatchment 21S: Worth Lot Runoff Area=5,891 sf 95.25% Impervious Runoff Depth=6.74"
Flow Length=105' Tc=6.0 min CN=97 Runoff=0.92 cfs 0.076 af

Reach 11R: Roof Leader Avg. Flow Depth=0.28' Max Vel=3.25 fps Inflow=0.37 cfs 0.030 af
6.0" Round Pipe n=0.012 L=94.0' S=0.0100 '/' Capacity=0.61 cfs Outflow=0.36 cfs 0.030 af

Reach 12R: Roof Leader Avg. Flow Depth=0.42' Max Vel=7.09 fps Inflow=1.66 cfs 0.139 af
8.0" Round Pipe n=0.012 L=113.0' S=0.0300 '/' Capacity=2.27 cfs Outflow=1.64 cfs 0.139 af

Reach 13R: Roof Leader Avg. Flow Depth=0.49' Max Vel=7.33 fps Inflow=2.01 cfs 0.169 af
8.0" Round Pipe n=0.012 L=21.0' S=0.0300 '/' Capacity=2.27 cfs Outflow=2.00 cfs 0.169 af

Reach 100R: POA #1 Inflow=4.99 cfs 0.421 af
Outflow=4.99 cfs 0.421 af

Reach 200R: POA #2 Inflow=2.84 cfs 0.235 af
Outflow=2.84 cfs 0.235 af

Pond 2P: CB #25851 Peak Elev=12.44' Inflow=0.73 cfs 0.060 af
12.0" Round Culvert n=0.012 L=64.0' S=0.0127 '/' Outflow=0.73 cfs 0.060 af

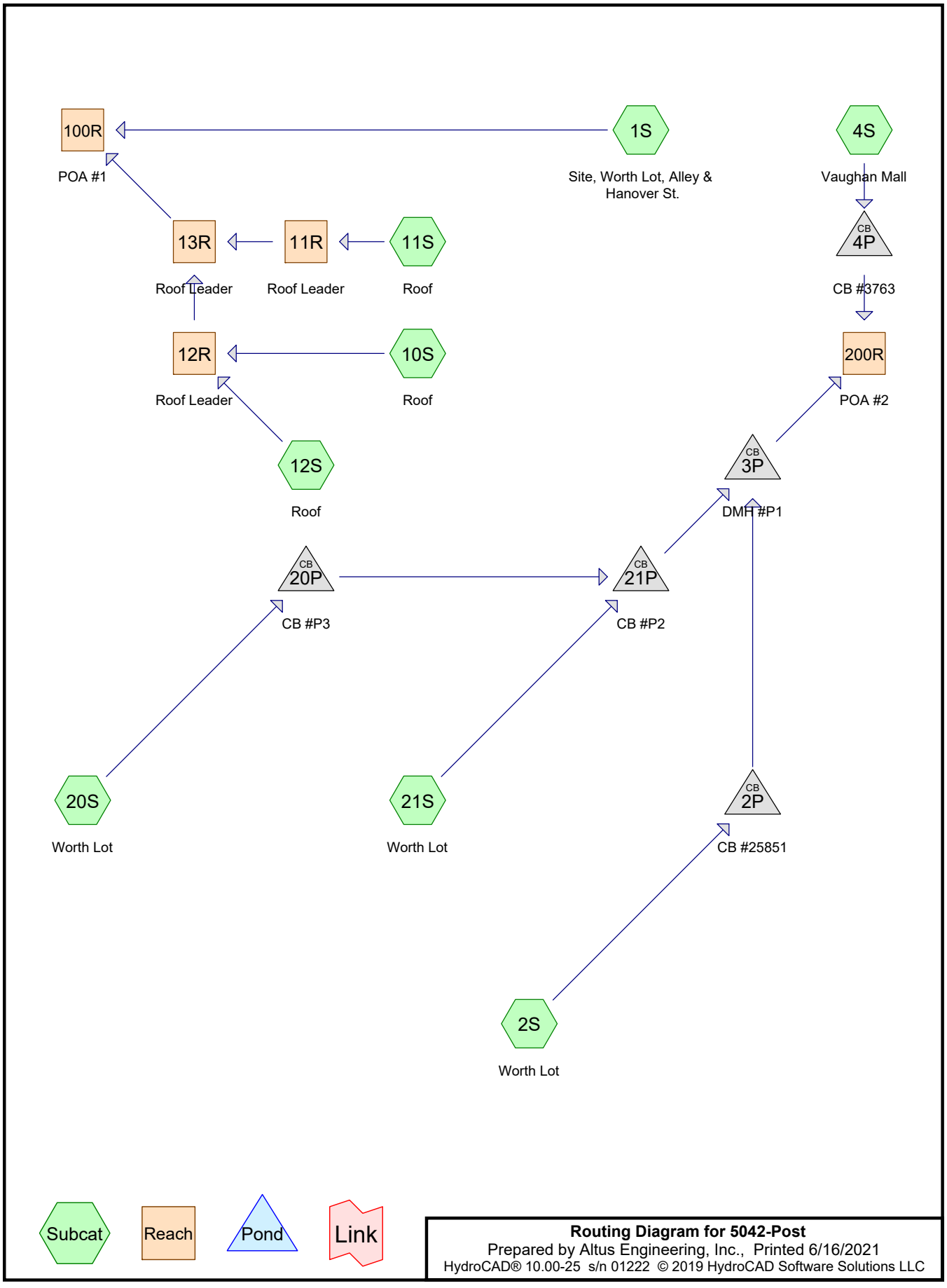
Pond 3P: DMH #P1 Peak Elev=12.09' Inflow=2.39 cfs 0.198 af
12.0" Round Culvert n=0.012 L=18.0' S=0.0100 '/' Outflow=2.39 cfs 0.198 af

Pond 4P: CB #3763 Peak Elev=12.36' Inflow=0.45 cfs 0.037 af
12.0" Round Culvert n=0.012 L=40.0' S=0.0140 '/' Outflow=0.45 cfs 0.037 af

Pond 20P: CB #P3 Peak Elev=12.38' Inflow=0.74 cfs 0.062 af
12.0" Round Culvert n=0.012 L=86.0' S=0.0050 '/' Outflow=0.74 cfs 0.062 af

Pond 21P: CB #P2 Peak Elev=12.21' Inflow=1.65 cfs 0.138 af
12.0" Round Culvert n=0.012 L=12.0' S=0.0050 '/' Outflow=1.65 cfs 0.138 af

Total Runoff Area = 1.158 ac Runoff Volume = 0.655 af Average Runoff Depth = 6.79"
2.97% Pervious = 0.034 ac 97.03% Impervious = 1.123 ac



Routing Diagram for 5042-Post
Prepared by Altus Engineering, Inc., Printed 6/16/2021

Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Site, Worth Lot, Alley & Runoff Area=19,157 sf 98.39% Impervious Runoff Depth=8.26"
Flow Length=347' Tc=6.0 min CN=98 Runoff=3.58 cfs 0.303 af

Subcatchment 2S: Worth Lot Runoff Area=4,739 sf 91.90% Impervious Runoff Depth=8.02"
Flow Length=124' Tc=6.0 min CN=96 Runoff=0.88 cfs 0.073 af

Subcatchment 4S: Vaughan Mall Runoff Area=2,908 sf 92.61% Impervious Runoff Depth=8.02"
Flow Length=61' Tc=6.0 min CN=96 Runoff=0.54 cfs 0.045 af

Subcatchment 10S: Roof Runoff Area=8,053 sf 100.00% Impervious Runoff Depth=8.26"
Tc=6.0 min CN=98 Runoff=1.51 cfs 0.127 af

Subcatchment 11S: Roof Runoff Area=2,409 sf 88.71% Impervious Runoff Depth=7.90"
Tc=6.0 min CN=95 Runoff=0.45 cfs 0.036 af

Subcatchment 12S: Roof Runoff Area=2,555 sf 100.00% Impervious Runoff Depth=8.26"
Tc=6.0 min CN=98 Runoff=0.48 cfs 0.040 af

Subcatchment 20S: Worth Lot Runoff Area=4,709 sf 99.17% Impervious Runoff Depth=8.26"
Flow Length=100' Tc=6.0 min CN=98 Runoff=0.88 cfs 0.074 af

Subcatchment 21S: Worth Lot Runoff Area=5,891 sf 95.25% Impervious Runoff Depth=8.14"
Flow Length=105' Tc=6.0 min CN=97 Runoff=1.10 cfs 0.092 af

Reach 11R: Roof Leader Avg. Flow Depth=0.32' Max Vel=3.38 fps Inflow=0.45 cfs 0.036 af
6.0" Round Pipe n=0.012 L=94.0' S=0.0100 '/' Capacity=0.61 cfs Outflow=0.44 cfs 0.036 af

Reach 12R: Roof Leader Avg. Flow Depth=0.48' Max Vel=7.32 fps Inflow=1.98 cfs 0.168 af
8.0" Round Pipe n=0.012 L=113.0' S=0.0300 '/' Capacity=2.27 cfs Outflow=1.97 cfs 0.168 af

Reach 13R: Roof Leader Avg. Flow Depth=0.59' Max Vel=7.38 fps Inflow=2.41 cfs 0.204 af
8.0" Round Pipe n=0.012 L=21.0' S=0.0300 '/' Capacity=2.27 cfs Outflow=2.40 cfs 0.204 af

Reach 100R: POA #1 Inflow=5.98 cfs 0.507 af
Outflow=5.98 cfs 0.507 af

Reach 200R: POA #2 Inflow=3.40 cfs 0.283 af
Outflow=3.40 cfs 0.283 af

Pond 2P: CB #25851 Peak Elev=12.49' Inflow=0.88 cfs 0.073 af
12.0" Round Culvert n=0.012 L=64.0' S=0.0127 '/' Outflow=0.88 cfs 0.073 af

Pond 3P: DMH #P1 Peak Elev=12.24' Inflow=2.86 cfs 0.239 af
12.0" Round Culvert n=0.012 L=18.0' S=0.0100 '/' Outflow=2.86 cfs 0.239 af

Pond 4P: CB #3763 Peak Elev=12.40' Inflow=0.54 cfs 0.045 af
12.0" Round Culvert n=0.012 L=40.0' S=0.0140 '/' Outflow=0.54 cfs 0.045 af

Pond 20P: CB #P3 Peak Elev=12.43' Inflow=0.88 cfs 0.074 af
12.0" Round Culvert n=0.012 L=86.0' S=0.0050 '/' Outflow=0.88 cfs 0.074 af

Pond 21P: CB #P2 Peak Elev=12.31' Inflow=1.98 cfs 0.166 af
12.0" Round Culvert n=0.012 L=12.0' S=0.0050 '/' Outflow=1.98 cfs 0.166 af

Total Runoff Area = 1.158 ac Runoff Volume = 0.790 af Average Runoff Depth = 8.19"
2.97% Pervious = 0.034 ac 97.03% Impervious = 1.123 ac

Section 5

NRCC Extreme Precipitation Table

ALTUS
ENGINEERING, INC.

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Smoothing	Yes
State	New Hampshire
Location	
Longitude	70.763 degrees West
Latitude	43.072 degrees North
Elevation	0 feet
Date/Time	Wed, 23 Dec 2020 12:00:25 -0500

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.81	1.04	**1yr**	0.70	0.98	1.21	1.56	2.03	2.66	2.92	**1yr**	2.35	2.81	3.22	3.94	4.55	**1yr**
2yr	0.32	0.50	0.62	0.81	1.02	1.30	**2yr**	0.88	1.18	1.52	1.94	2.49	3.21	3.57	**2yr**	2.84	3.43	3.94	4.68	5.33	**2yr**
5yr	0.37	0.58	0.73	0.98	1.25	1.61	**5yr**	1.08	1.47	1.89	2.43	3.14	4.07	4.58	**5yr**	3.60	4.40	5.04	5.94	6.70	**5yr**
10yr	0.41	0.65	0.82	1.12	1.45	1.89	**10yr**	1.25	1.73	2.23	2.89	3.75	4.87	5.53	**10yr**	4.31	5.32	6.09	7.11	7.98	**10yr**
25yr	0.48	0.76	0.97	1.34	1.77	2.34	**25yr**	1.53	2.14	2.78	3.63	4.74	6.17	7.10	**25yr**	5.46	6.83	7.80	9.03	10.05	**25yr**
50yr	0.54	0.86	1.10	1.54	2.07	2.76	**50yr**	1.79	2.53	3.29	4.32	5.66	7.39	8.58	**50yr**	6.54	8.25	9.42	10.81	11.98	**50yr**
100yr	0.60	0.97	1.25	1.77	2.42	3.26	**100yr**	2.09	2.98	3.90	5.16	6.77	8.85	10.38	**100yr**	7.83	9.98	11.38	12.96	14.27	**100yr**
200yr	0.67	1.10	1.43	2.05	2.82	3.83	**200yr**	2.44	3.52	4.62	6.13	8.08	10.61	12.55	**200yr**	9.39	12.07	13.76	15.55	17.02	**200yr**
500yr	0.80	1.31	1.71	2.48	3.48	4.76	**500yr**	3.00	4.38	5.76	7.70	10.22	13.48	16.14	**500yr**	11.93	15.52	17.67	19.78	21.49	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.36	0.44	0.59	0.72	0.88	**1yr**	0.63	0.86	0.92	1.33	1.68	2.24	2.49	**1yr**	1.98	2.40	2.87	3.18	3.90	**1yr**
2yr	0.31	0.49	0.60	0.81	1.00	1.19	**2yr**	0.86	1.16	1.37	1.82	2.34	3.06	3.45	**2yr**	2.71	3.32	3.82	4.55	5.08	**2yr**
5yr	0.35	0.54	0.67	0.92	1.17	1.40	**5yr**	1.01	1.37	1.61	2.12	2.73	3.79	4.19	**5yr**	3.35	4.03	4.72	5.53	6.24	**5yr**
10yr	0.39	0.59	0.73	1.03	1.33	1.60	**10yr**	1.14	1.56	1.80	2.39	3.06	4.37	4.86	**10yr**	3.87	4.67	5.44	6.41	7.20	**10yr**
25yr	0.44	0.67	0.83	1.19	1.56	1.90	**25yr**	1.35	1.86	2.10	2.75	3.53	4.72	5.89	**25yr**	4.18	5.66	6.65	7.79	8.68	**25yr**
50yr	0.48	0.73	0.91	1.31	1.76	2.17	**50yr**	1.52	2.12	2.35	3.07	3.93	5.33	6.80	**50yr**	4.72	6.54	7.72	9.04	10.02	**50yr**
100yr	0.54	0.81	1.01	1.47	2.01	2.47	**100yr**	1.73	2.41	2.63	3.41	4.35	6.00	7.85	**100yr**	5.31	7.55	8.98	10.51	11.56	**100yr**
200yr	0.59	0.89	1.13	1.63	2.28	2.81	**200yr**	1.96	2.75	2.93	3.78	4.79	6.72	9.06	**200yr**	5.95	8.71	10.42	12.22	13.37	**200yr**
500yr	0.68	1.02	1.31	1.90	2.71	3.36	**500yr**	2.34	3.29	3.41	4.31	5.45	7.82	10.94	**500yr**	6.92	10.52	12.69	14.96	16.19	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.44	0.54	0.72	0.89	1.08	**1yr**	0.77	1.06	1.26	1.74	2.21	2.98	3.16	**1yr**	2.64	3.04	3.58	4.37	5.04	**1yr**
2yr	0.34	0.52	0.64	0.86	1.07	1.27	**2yr**	0.92	1.24	1.48	1.96	2.51	3.42	3.70	**2yr**	3.03	3.56	4.09	4.84	5.63	**2yr**
5yr	0.40	0.62	0.77	1.05	1.34	1.62	**5yr**	1.15	1.58	1.88	2.53	3.25	4.34	4.96	**5yr**	3.84	4.77	5.38	6.37	7.16	**5yr**
10yr	0.47	0.72	0.89	1.25	1.61	1.98	**10yr**	1.39	1.93	2.28	3.11	3.95	5.34	6.20	**10yr**	4.72	5.96	6.82	7.84	8.75	**10yr**
25yr	0.58	0.88	1.09	1.56	2.05	2.57	**25yr**	1.77	2.51	2.95	4.07	5.15	7.78	8.34	**25yr**	6.88	8.02	9.15	10.34	11.41	**25yr**
50yr	0.67	1.02	1.27	1.83	2.46	3.13	**50yr**	2.12	3.06	3.60	5.00	6.32	9.74	10.46	**50yr**	8.62	10.06	11.44	12.72	13.96	**50yr**
100yr	0.79	1.19	1.49	2.16	2.96	3.81	**100yr**	2.55	3.72	4.37	6.16	7.76	12.18	13.10	**100yr**	10.78	12.60	14.31	15.69	17.09	**100yr**
200yr	0.92	1.39	1.76	2.55	3.56	4.65	**200yr**	3.07	4.55	5.34	7.58	9.54	15.28	16.44	**200yr**	13.53	15.81	17.92	19.35	20.92	**200yr**
500yr	1.15	1.71	2.19	3.19	4.53	6.04	**500yr**	3.91	5.90	6.93	10.02	12.56	20.65	22.20	**500yr**	18.27	21.34	24.13	25.51	27.34	**500yr**

Powered by ACIS Northeast Regional Climate Center

Section 6

NRCS Soils Report

ALTUS
ENGINEERING, INC.

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Rockingham County, New Hampshire

June 11, 2021

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:1,100 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 15 30 60 90

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Rockingham County, New Hampshire
Survey Area Data: Version 22, May 29, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—Sep 9, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
699	Urban land	6.0	100.0%
Totals for Area of Interest		**6.0**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Rockingham County, New Hampshire

699—Urban land

Map Unit Composition

Urban land: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Minor Components

Not named

Percent of map unit: 15 percent
Hydric soil rating: No

Section 7

Stormwater Operations & Maintenance Plan

ALTUS
ENGINEERING, INC.

STORMWATER INSPECTION AND MAINTENANCE MANUAL

64 Vaughan Mall
Assessor's Map 126, Lot 1

OWNER AT TIME OF SITE PLAN APPROVAL:
64 Vaughan Mall, LLC
41 Industrial Drive
Exeter, NH 03833

Proper inspection, maintenance, and repair are key elements in maintaining a successful stormwater management program on a developed property. Routine inspections ensure permit compliance and reduce the potential for deterioration of infrastructure or reduced water quality. The following responsible parties shall be in charge of managing the stormwater facilities:

RESPONSIBLE PARTIES:

Owner:	*64 Vaughan Mall, LLC or Assigns*		*(603) 778-9999*
	Name	*Company*	*Phone*
Inspection:	*64 Vaughan Mall, LLC or Assigns*		*(603) 778-9999*
	Name	*Company*	*Phone*
Maintenance:	*64 Vaughan Mall, LLC or Assigns*		*(603) 778-9999*
	Name	*Company*	*Phone*

NOTES:

Inspection and maintenance responsibilities shall transfer to any future property owner(s) and any related homeowner's association (HOA).

This manual shall become part of any HOA documents.

This manual shall be updated as needed to reflect any changes related to any transfer of ownership and/or any delegation of inspection and maintenance responsibilities to an HOA.

ALTUS ENGINEERING, INC.

CULVERTS AND DRAINAGE PIPES

Function – Culverts and drainage pipes convey stormwater away from buildings, walkways, and parking areas to surface waters or closed drainage systems.

Maintenance

- Culverts and drainage pipes shall be inspected semi-annually, or more often as needed, for accumulation of debris and structural integrity. Leaves and other debris shall be removed from inlets and outlets to insure the functionality of drainage structures. Debris shall be disposed of on site where it will not concentrate back at the drainage structures or at a solid waste disposal facility.
- Downspouts connected to a drainage system should be inspected annually to ensure that the connections are directing runoff as intended. Any loose or displaced downspout connections should be reconnected as necessary.

TRENCH DRAINS

Function – Trench Drains collect stormwater, primarily from paved surfaces. Stormwater from paved areas often contains sediment and contaminants. Trench drains may trap sediment and debris.

Maintenance

- Remove leaves, sediment and debris from structure grates on an as-needed basis.
- Sumps shall be inspected and cleaned annually and any removed sediment and debris shall be disposed of at a solid waste disposal facility.
- Trench drains located in an enclosed areas such as basements and parking garages may be equipped with evaporators. In the event that an evaporator fails, a qualified professional should be retained for assessment and repair.

LANDSCAPED AREAS – ORGANIC FERTILIZER MANAGEMENT

Function – All fertilizer used on site shall be certified organic. Organic fertilizer management involves controlling the rate, timing and method of organic fertilizer application so that the nutrients are taken up by the plants thereby reducing the chance of polluting surface and ground waters. Organic fertilizer management can be effective in reducing the amounts of phosphorus and nitrogen in runoff from landscaped areas, particularly lawns.

Maintenance

- Have the soil tested by your landscaper or local Soil Conservation Service for nutrient requirements and follow the recommendations.
- Do not apply organic fertilizer to frozen ground.
- Clean up any organic fertilizer spills.
- Do not allow organic fertilizer to be broadcast into water bodies.
- When organically fertilizing an area, water thoroughly, but do not create a situation where water runs off the surface towards a water body or drainage structure.

LANDSCAPED AREAS - LITTER CONTROL

Function – Landscaped areas tend to filter debris and contaminates that may block drainage systems and pollute the surface and ground waters.

Maintenance

- Litter Control and landscape maintenance involves removing litter such as trash, leaves, lawn clippings, pet wastes, oil and chemicals from streets, parking lots and lawns before materials can be transported into surface waters.
- Litter control shall be implemented as part of the grounds maintenance program.

DE-ICING CHEMICAL USE AND STORAGE

Function – Sand and salt are used for de-icing of drives.

Maintenance

- Salt is highly water-soluble. Contamination of freshwater wetlands and other sensitive areas can occur when salt is stored in open areas. Salt piles shall be covered at all times if not stored in a shed. Runoff from stockpiles shall be contained to keep the runoff from entering the drainage system.
- When shared driveways and walks are free of snow and ice, they should be swept clean. Disposal shall be in a solid waste disposal facility.
- **Salt use shall be minimized.** Sand shall be used for de-icing activities when possible. Salt is highly water-soluble. Contamination of freshwater wetlands and other sensitive areas can occur when salt is stored in open areas. Owner shall not store salt piles on site.

GENERAL CLEAN UP

- Upon completion of the project, the contractor shall remove all temporary stormwater structures (i.e., temporary stone check dams, silt fence, temporary diversion swales, catch basin inlet filter, etc.). Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required shall be dressed to conform to the existing grade, prepared, and seeded. Remove any sediment in catch basins and clean drain pipes that may have accumulated during construction.
- Once in operation, all paved areas of the site should be swept free of sediment at least once annually at the end of winter/early spring prior to significant spring rains.

APPPENDIX

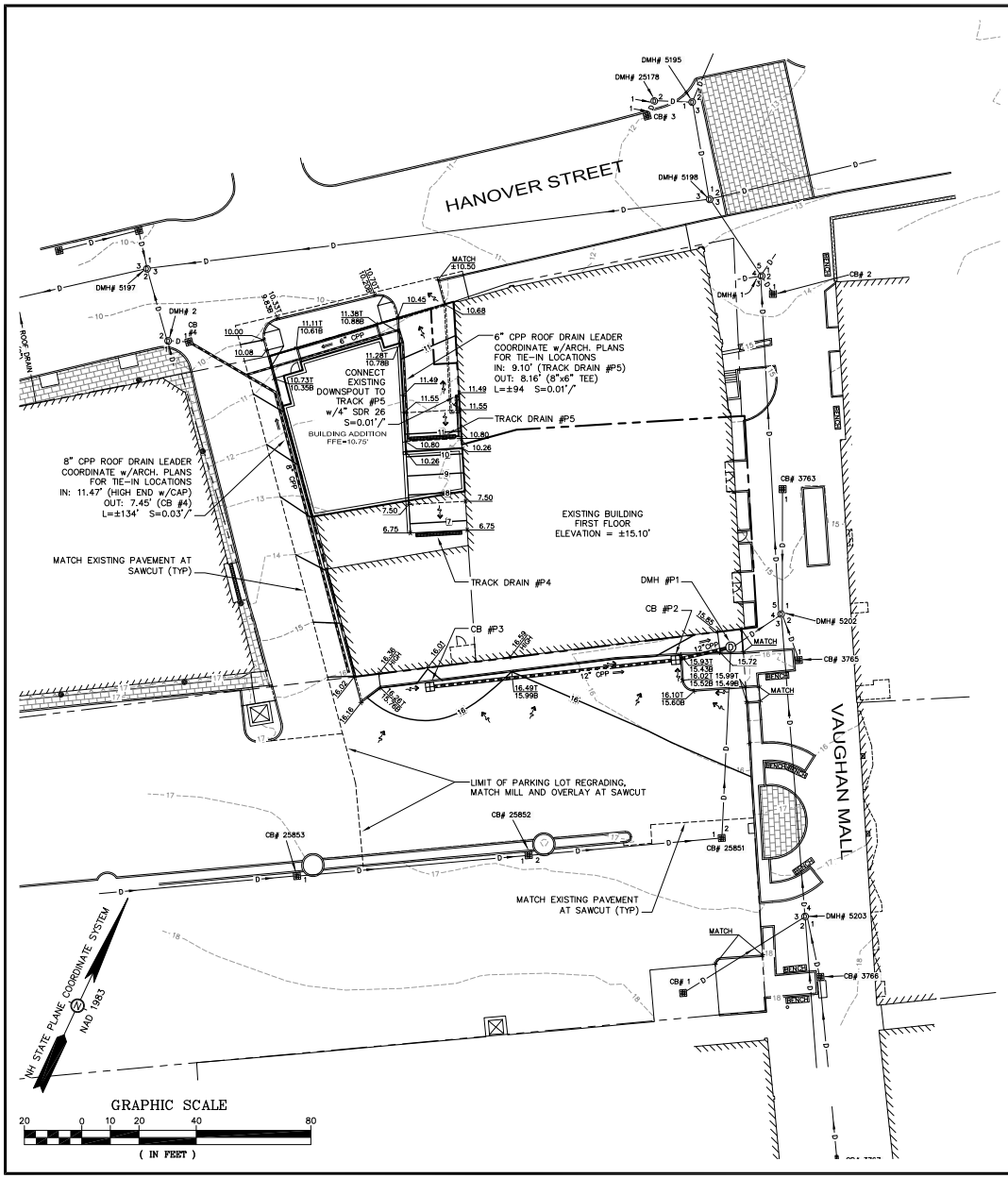
A. Stormwater System Operations and Maintenance Report
B. Site Grading and Drainage Plan

STORM WATER SYSTEM OPERATION AND MAINTENANCE REPORT

General Information			
Project Name			
Owner			
Inspector's Name(s)			
Inspector's Contact Information			
Date of Inspection		**Start Time:**	**End Time:**
Type of Inspection: ☐ Annual Report ☐ Post-storm event ☐ Due to a discharge of significant amounts of sediment			
Notes:			

General Site Questions and Discharges of Significant Amounts of Sediment			
Subject		**Status**	**Notes**
A discharge of significant amounts of sediment may be indicated by (but is not limited to) observations of the following. Note whether any are observed during this inspection:			*Notes/ Action taken:*
1	Do the current site conditions reflect the attached site plan?	❑Yes ❑No	
2	Is the site permanently stabilized, temporary erosion and sediment controls are removed, and stormwater discharges from construction activity are eliminated?	❑Yes ❑No	
3	Is there evidence of the discharge of significant amounts of sediment to surface waters, or conveyance systems leading to surface waters?	❑Yes ❑No	

Permit Coverage and Plans				
#	**BMP/Facility**	**Inspected**	**Corrective Action Needed and Notes**	**Date Corrected**
	Drainage Pipes	❑Yes ❑No		
	Downspout Connections	❑Yes ❑No		
	Trench Drains	❑Yes ❑No		
	Landscape Areas	❑Yes ❑No		
		❑Yes ❑No		
		❑Yes ❑No		



DRAINAGE SCHEDULE

CB #4 (EXISTING)
RIM=9.57'
IN: 7.45' (NEW 8" ROOF LEADER)
OUT: ±7.32' (EXISTING TO DMH #2)
12" PVC (EXISTING)

DMH #P1
(FORMER CB #3764)
RIM=±15.45'(ADJUST RIM TO MATCH RAMP SLOPE)
IN: 11.30' (NEW 12" CB #P2)
IN: ±11.20' (EXIST. 12" CB #25851)
OUT: ±11.10' (TO DMH #5202)
12" RCP (EXISTING)

CB #P2
RIM=15.30'
IN: 11.46' (12" CB #P3)
OUT: 11.36' (TO DMH #P1)
12" CPP
L=±12' S=0.005'/'

CB #P3
RIM=15.35'
OUT: 11.89' (TO CB #P2)
12" CPP
L=±86' S=0.005'/'

TRACK DRAIN #P4
RIM=6.75'
16' LONG x 1.17' WIDE
w/EVAPORATOR (COORDINATE w/ARCH. PLANS FOR MODEL, CONDUIT, WIRING AND CIRCUITRY)

TRACK DRAIN #P5
RIM=10.82'
16' LONG x 1.17' WIDE
IN: 9.57' (4" ROOF LEADER)
OUT: 9.57'
w/EXTERNAL DROP TO 9.10'
6" CPP (TO 8" ROOF LEADER)
L=±94' S=0.01'/'

GRADING AND DRAINAGE NOTES

1. DO NOT BEGIN CONSTRUCTION UNTIL ALL STATE AND LOCAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED.
2. CONTRACTOR SHALL OBTAIN A "DIGSAFE" NUMBER AT LEAST 72 HOURS PRIOR TO COMMENCING CONSTRUCTION.
3. ALL CONSTRUCTION SHALL MEET THE MINIMUM CONSTRUCTION STANDARDS OF THE CITY OF PORTSMOUTH AND NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION. THE MORE STRINGENT SPECIFICATION SHALL GOVERN.
4. ALL BENCHMARKS AND TOPOGRAPHY SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO INITIATING CONSTRUCTION.
5. UNLESS OTHERWISE AGREED IN WRITING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING TEMPORARY BENCHMARKS (TBMS) AND PERFORMING ALL CONSTRUCTION SURVEY LAYOUT.
6. PRIOR TO CONSTRUCTION, FIELD VERIFY JUNCTIONS, LOCATIONS AND ELEVATIONS/INVERTS OF ALL EXISTING STORMWATER AND UTILITY LINES. PRESERVE AND PROTECT LINES TO BE RETAINED.
7. TEMPORARY INLET PROTECTION MEASURES SHALL BE INSTALLED IN ALL CATCH BASINS WITHIN 100' OF THE PROJECT SITE WHEN SITE WORK WITHIN CONTRIBUTING AREAS IS ACTIVE OR SAID AREAS HAVE NOT BEEN STABILIZED.
8. PROTECTION OF SUBGRADE: THE CONTRACTOR SHALL BE REQUIRED TO MAINTAIN STABLE, DEWATERED SUBGRADES FOR FOUNDATIONS, PAVEMENT AREAS, UTILITY TRENCHES, AND OTHER AREAS DURING CONSTRUCTION. SUBGRADE DISTURBANCE MAY BE INFLUENCED BY EXCAVATION METHODS, MOISTURE, PRECIPITATION, GROUNDWATER CONTROL, AND CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO PREVENT SUBGRADE DISTURBANCE. SUCH PRECAUTIONS MAY INCLUDE DIVERTING STORMWATER RUNOFF AWAY FROM CONSTRUCTION AREAS, REDUCING TRAFFIC IN SENSITIVE AREAS, AND MAINTAINING AN EFFECTIVE DEWATERING PROGRAM. SOILS EXHIBITING HEAVING OR INSTABILITY SHALL BE OVER EXCAVATED TO MORE COMPETENT BEARING SOIL AND REPLACED WITH FREE DRAINING STRUCTURAL FILL. IF THE EARTHWORK IS PERFORMED DURING FREEZING WEATHER, EXPOSED SUBGRADES ARE SUSCEPTIBLE TO FROST. NO FILL OR UTILITIES SHALL BE PLACED ON FROZEN GROUND. THIS WILL LIKELY REQUIRE REMOVAL OF A FROZEN SOIL CRUST AT THE COMMENCEMENT OF EACH DAY'S OPERATIONS. THE FINAL SUBGRADE ELEVATION WOULD ALSO REQUIRE AN APPROPRIATE DEGREE OF INSULATION AGAINST FREEZING.
9. IF SUITABLE, EXCAVATED MATERIALS SHALL BE PLACED AS FILL WITHIN UPLAND AREAS ONLY AND SHALL NOT BE PLACED WITHIN WETLANDS. PLACEMENT OF BORROW MATERIALS SHALL BE PERFORMED IN A MANNER THAT PREVENTS LONG TERM DIFFERENTIAL SETTLEMENT. EXCESSIVELY WET MATERIALS SHALL BE STOCKPILED AND ALLOWED TO DRAIN BEFORE PLACEMENT. FROZEN MATERIAL SHALL NOT BE USED FOR CONSTRUCTION.
10. ALL CATCH BASIN, MANHOLE AND OTHER DRAINAGE RIMS SHALL BE SET FLUSH WITH OR NO LESS THAN 0.1' BELOW FINISH GRADE. ANY RIM ABOVE SURROUNDING FINISH GRADE SHALL NOT BE ACCEPTED.
11. ALL SPOT GRADES ARE AT FINISH GRADE AND BOTTOM OF CURB WHERE APPLICABLE.
12. IN ORDER TO PROVIDE VISUAL CLARITY ON THE PLANS, DRAINAGE AND OTHER UTILITY STRUCTURES MAY NOT BE DRAWN TO SCALE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER SIZING AND LOCATION OF ALL STRUCTURES AND IS DIRECTED TO RESOLVE ANY POTENTIAL DISCREPANCY WITH THE ENGINEER PRIOR TO CONSTRUCTION.

LEGEND

- PROPERTY LINE
- EASEMENT LINE
- EXISTING PAVEMENT/CURB
- PROPOSED PAVEMENT/VERTICAL GRANITE CURB
- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT GRADE/TOP & BOTTOM OR CURB/WALL
- EXISTING WATER/CURB STOP/VALVE/HYDRANT
- EXISTING SEWER/MANHOLE
- EXISTING GAS/VALVE
- EXIST. OVER/UNDERGROUND UTILITIES/POLE
- EXISTING DRAINAGE/CB/DMH
- PROPOSED THRUST BLOCK/WATER/CURB STOP/VALVE/HYDRANT
- PROPOSED DOMESTIC WATER SERVICE/FIRE WATER SERVICE
- PROPOSED SEWER/MANHOLE/CLEANOUT
- PROPOSED GAS SERVICE
- PROPOSED OVERHEAD UTILITIES/UTILITY POLE
- PROPOSED UNDERGROUND ELECTRIC/PHONE/TV
- PROPOSED DRAINAGE (HARD PIPE)/CB/DCB/DMH/FES
- CPP FES HDWL CORRUGATED PLASTIC PIPE/FLARED END SECTION/HEADWALL
- PROPOSED GROUND SLOPE/APPROX. GRADE/STONE CHECK DAM
- SILTFENCE/SEDIMENT BARRIER/CONST. FENCE
- STABILIZED CONSTRUCTION EXIT
- PROPOSED SAWCUT LINE

P5042

ALTUS ENGINEERING, INC.
133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

NOT FOR CONSTRUCTION

ISSUED FOR: TAC

ISSUE DATE: JUNE 21, 2021

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	TAC WORK SESSION	EBS	05/05/20
1	TAC WORK SESSION	EBS	07/07/20
2	TAC	EBS	10/19/20
3	PB CONSULTATION	EBS	11/02/20
4	TAC	EBS	03/22/21
5	TAC	EBS	04/19/21
6	TAC	EBS	05/19/21
7	TAC	EBS	06/21/21

DRAWN BY: EBS
APPROVED BY: EDW
DRAWING FILE: 5042-SITE.dwg

SCALE: 22"x34" 1" = 20'
11"x17" 1" = 40'

OWNER:
64 VAUGHAN MALL, LLC
41 INDUSTRIAL DRIVE
EXETER, NH 03833

APPLICANT:
HAMPSHIRE DEVELOPMENT CORP.
41 INDUSTRIAL DRIVE
EXETER, NH 03833

PROJECT:
64 VAUGHAN MALL BUILDING RESTORATION
TAX MAP 126, LOT 1
64 VAUGHAN MALL
PORTSMOUTH, NH 03801

TITLE:
GRADING AND DRAINAGE PLAN

SHEET NUMBER:
C-3

Section 8

Watershed Plans

Pre-Development Drainage Area Plan
Post-Development Drainage Area Plan

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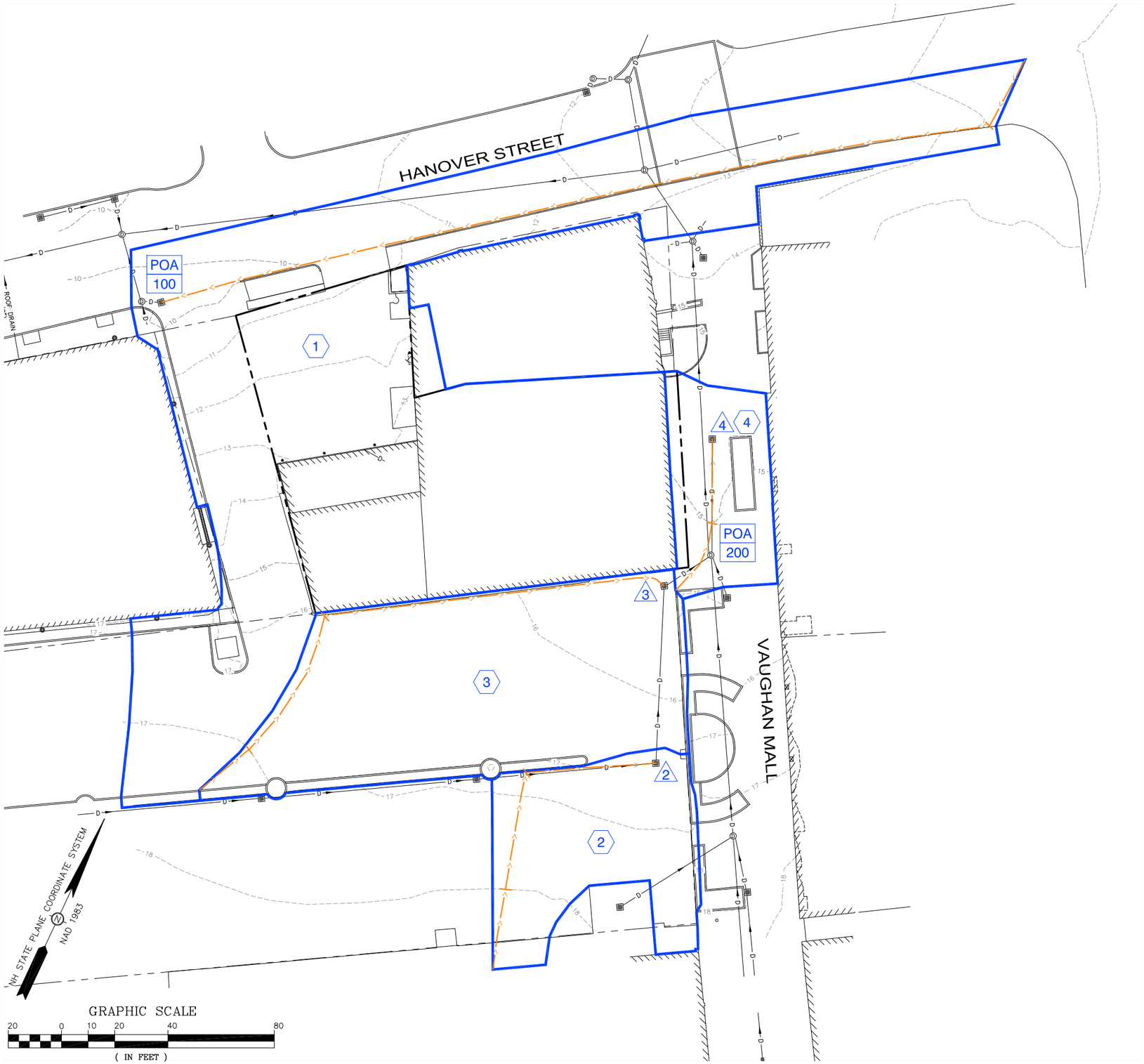

LEGEND

- PROPERTY LINE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- WATERSHED BOUNDARY
- Tc PATH
- PROPOSED GROUND SLOPE DIRECTION
- SUBCATCHMENT/POND/REACH
- POINT OF ANALYSIS

ALTUS ENGINEERING, INC.

133 Court Street Portsmouth, NH 03801
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EXETER, NH 03833

APPLICANT:

HAMPSHIRE DEVELOPMENT CORP.

41 INDUSTRIAL DRIVE
EXETER, NH 03833

PROJECT:

64 VAUGHAN MALL BUILDING RESTORATION

TAX MAP 126, LOT 1

64 VAUGHAN MALL
PORTSMOUTH, NH 03801

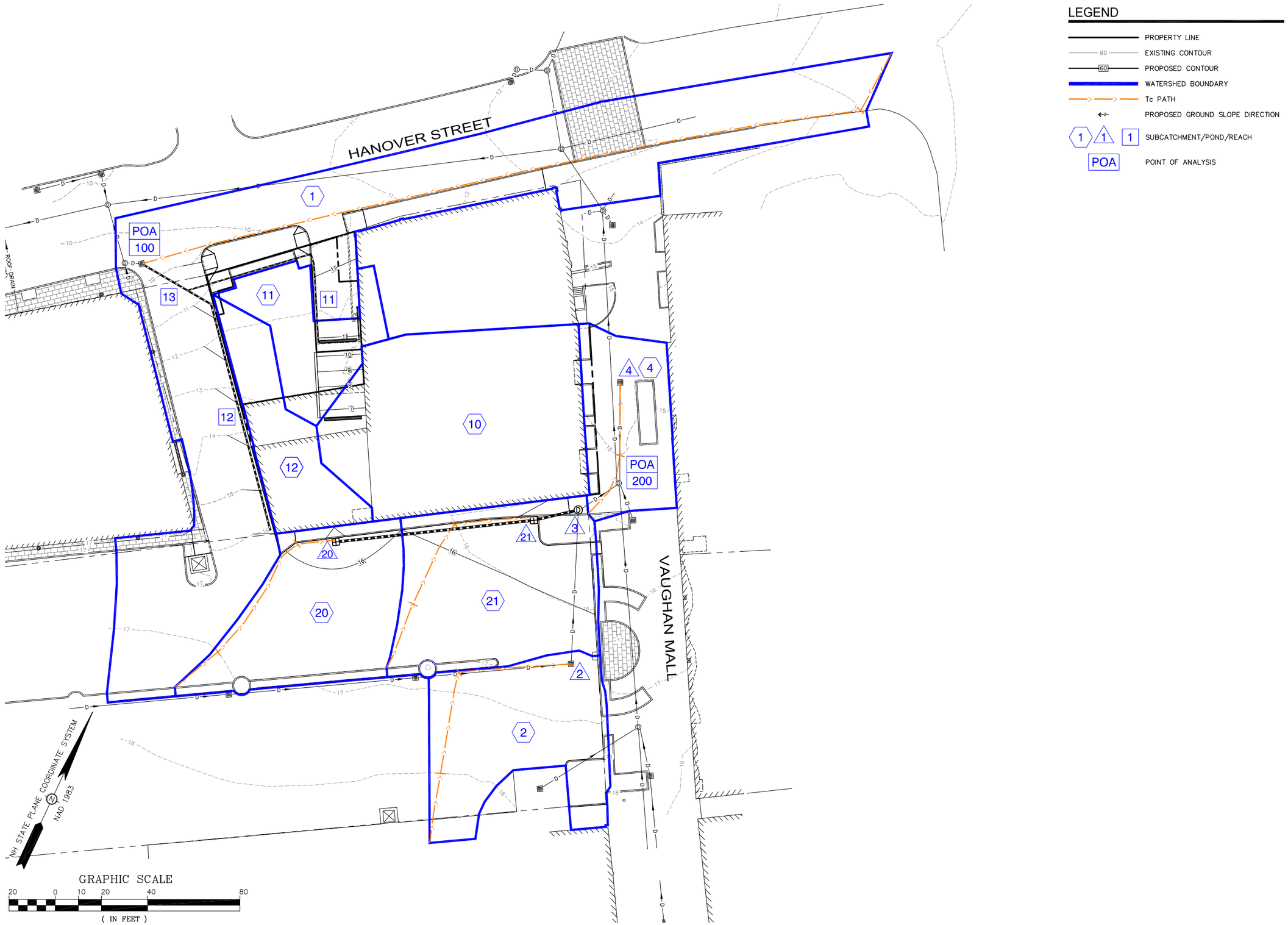
TITLE:

PRE-DEVELOPMENT WATERHSED PLAN

SHEET NUMBER:

WS-1

P5042



LEGEND

- PROPERTY LINE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- WATERSHED BOUNDARY
- Tc PATH
- PROPOSED GROUND SLOPE DIRECTION
- SUBCATCHMENT/POND/REACH
- POINT OF ANALYSIS

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PROJECT:

64 VAUGHAN MALL BUILDING RESTORATION

TAX MAP 126, LOT 1

64 VAUGHAN MALL
PORTSMOUTH, NH 03801

TITLE:

POST-DEVELOPMENT WATERSHED PLAN

SHEET NUMBER:

WS-2

P5042