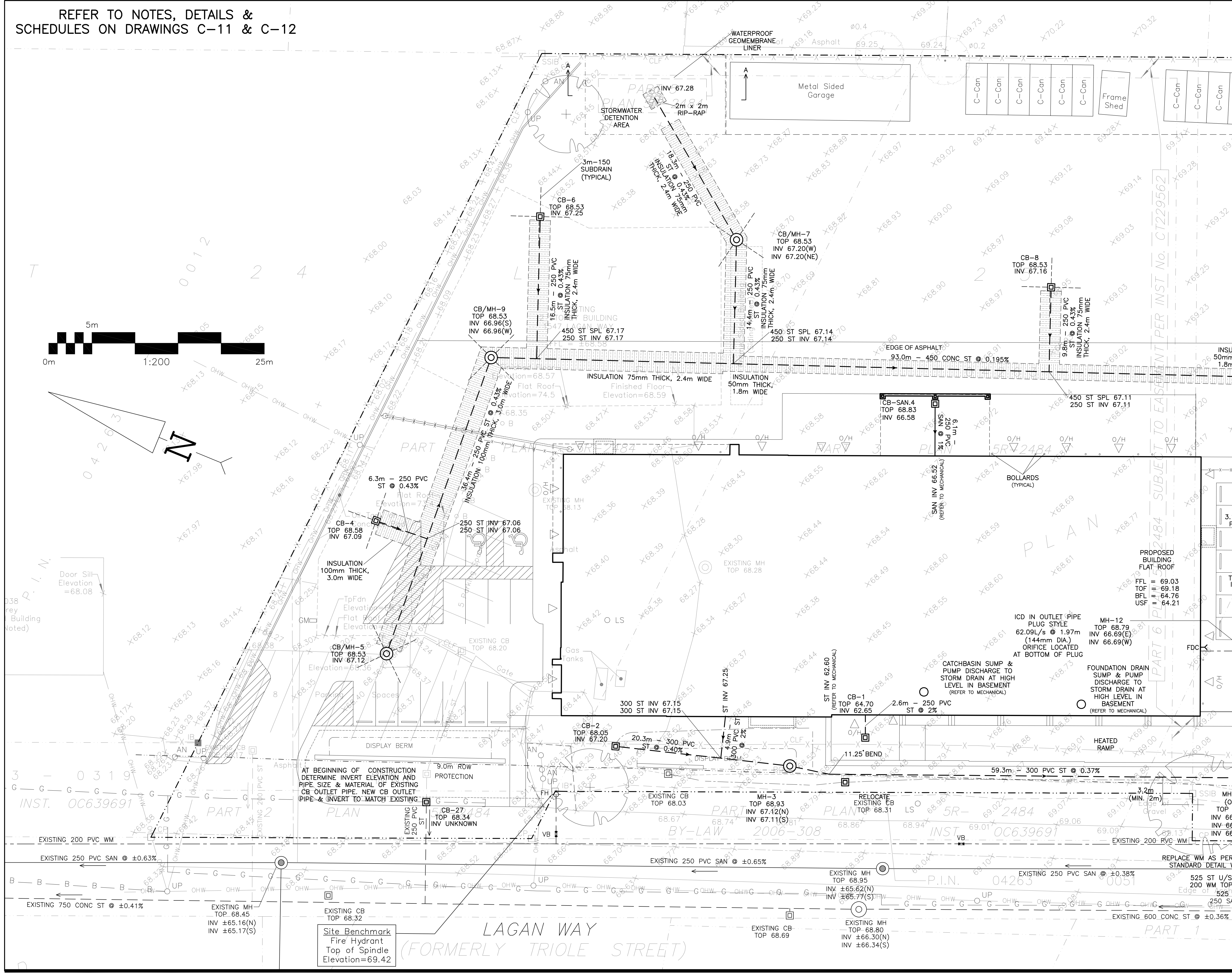


REFER TO NOTES, DETAILS &
SCHEDULES ON DRAWINGS C-11 & C-12



LEGEND

- FFL FIRST FLOOR ELEVATION
- TOF TOP OF FOUNDATION
- BFL BASEMENT FLOOR ELEVATION
- USF UNDERSIDE OF FOOTING
- PROPERTY LINE
- CB CATCH BASIN
- MH STORM MANHOLE
- CB/MH CATCH BASIN/MANHOLE
- MH SANITARY MANHOLE
- FH FIRE HYDRANT
- FDC FIRE DEPARTMENT CONNECTION
- CS CURB STOP & STANDPOST
- VB VALVE & VALVE BOX
- M WATER METER
- R REMOTE WATER METER
- SAN SANITARY SEWER
- ST STORM SEWER
- WS/WM WATER SERVICE/WATERMAIN
- SPL SPRINGLINE OF PIPE
- INV INVERT OF PIPE
- CENTERLINE OF SWALE
- 150mm BARRIER CURB
- D.C. DEPRESSED CURB
- ROAD CUT REINSTATEMENT

KEY PLAN

No.	DATE	REVISION
5	AUG 6-26	RE-ISSUED FOR APPROVAL
4	MAY 15-26	ISSUED FOR TENDER
3	APR 7-26	RE-ISSUED FOR APPROVAL
2	DEC 16-25	ISSUED FOR APPROVAL
1	NOV 13-25	ISSUED FOR COORDINATION

D. B. GRAY ENGINEERING INC.
Stormwater Management - Grading & Drainage - Storm & Sanitary Sewers - Watermain
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d.gray@dbgrayengineering.com

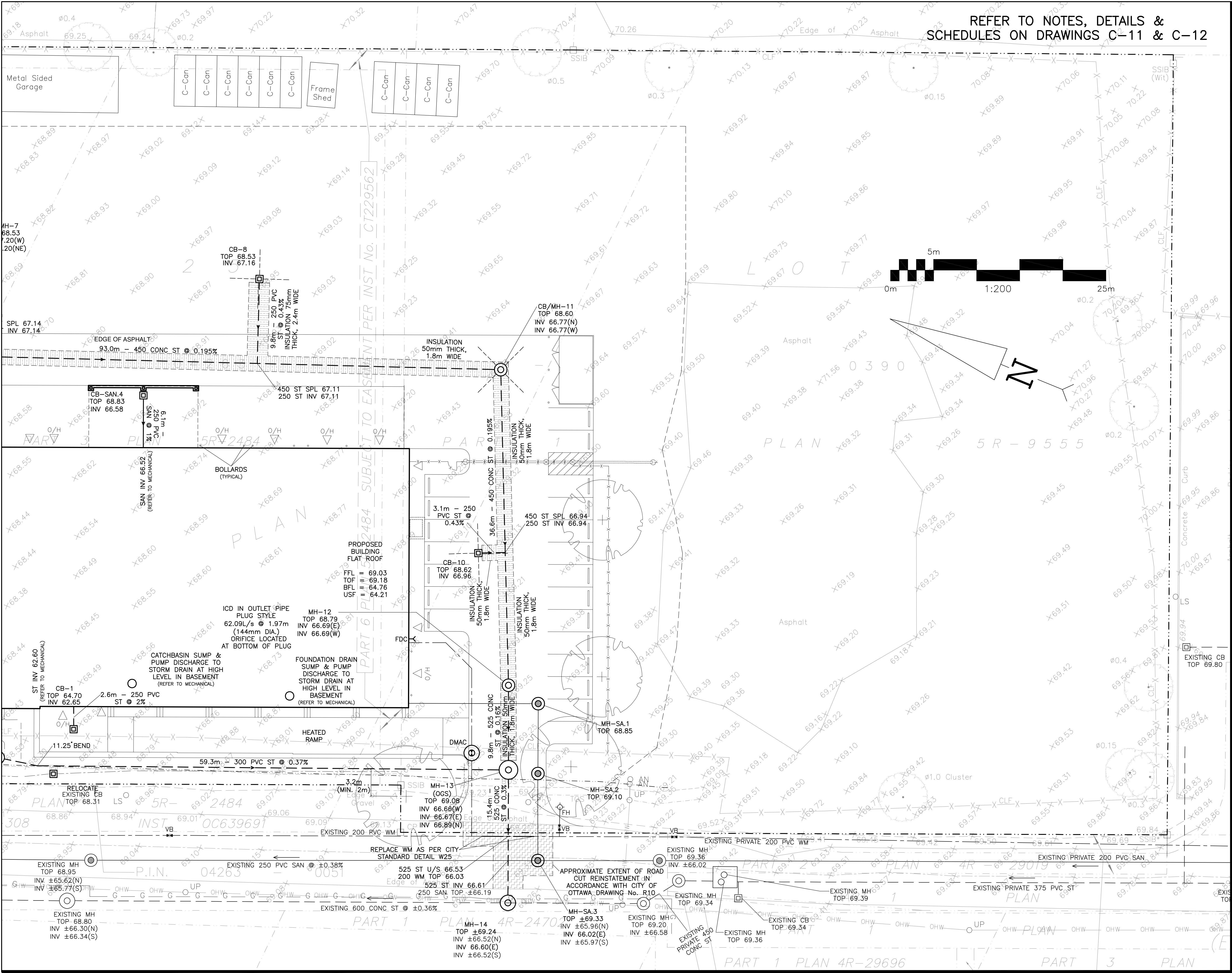
Project
**PROPOSED DICKIE MOORE
RENTALS PROPERTY
REDEVELOPMENT
1547 LAGAN WAY
OTTAWA, ONTARIO**

Drawing Title
**SITE SERVICING PLAN
(NORTH AREA STORM)**

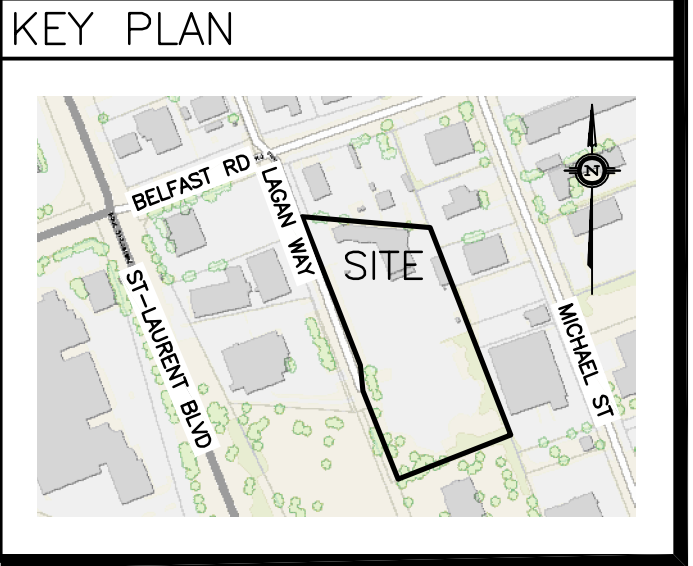
Engineer's Seal

Drawn
D.B.G.
H. Scale
1:200
V. Scale
Date
NOV 13-25
Job No.
24022

Drawing No.
**C-2
of 13**



LEGEND	
FFL	FIRST FLOOR ELEVATION
TOF	TOP OF FOUNDATION
BFL	BASEMENT FLOOR ELEVATION
USF	UNDERSIDE OF FOOTING
---	PROPERTY LINE
CB	CATCH BASIN
MH	STORM MANHOLE
CB/MH	CATCH BASIN/MANHOLE
MH	SANITARY MANHOLE
FH	FIRE HYDRANT
FDC	FIRE DEPARTMENT CONNECTION
CS	CURB STOP & STANDPOST
VB	VALVE & VALVE BOX
(M)	WATER METER
(R)	REMOTE WATER METER
SAN	SANITARY SEWER
ST	STORM SEWER
WS/WM	WATER SERVICE/WATERMAIN
SPL	SPRINGLINE OF PIPE
INV	INVERT OF PIPE
---	CENTERLINE OF SWALE
---	150mm BARRIER CURB
D.C.	DEPRESSED CURB
---	ROAD CUT REINSTATEMENT



No.	DATE	REVISION
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Project
**PROPOSED DICKIE MOORE
RENTALS PROPERTY
REDEVELOPMENT
1547 LAGAN WAY
OTTAWA, ONTARIO**

Drawing Title
**SITE SERVICING PLAN
(SOUTH AREA STORM)**

Engineer's Seal

NOT VALID UNLESS
SIGNED & DATED

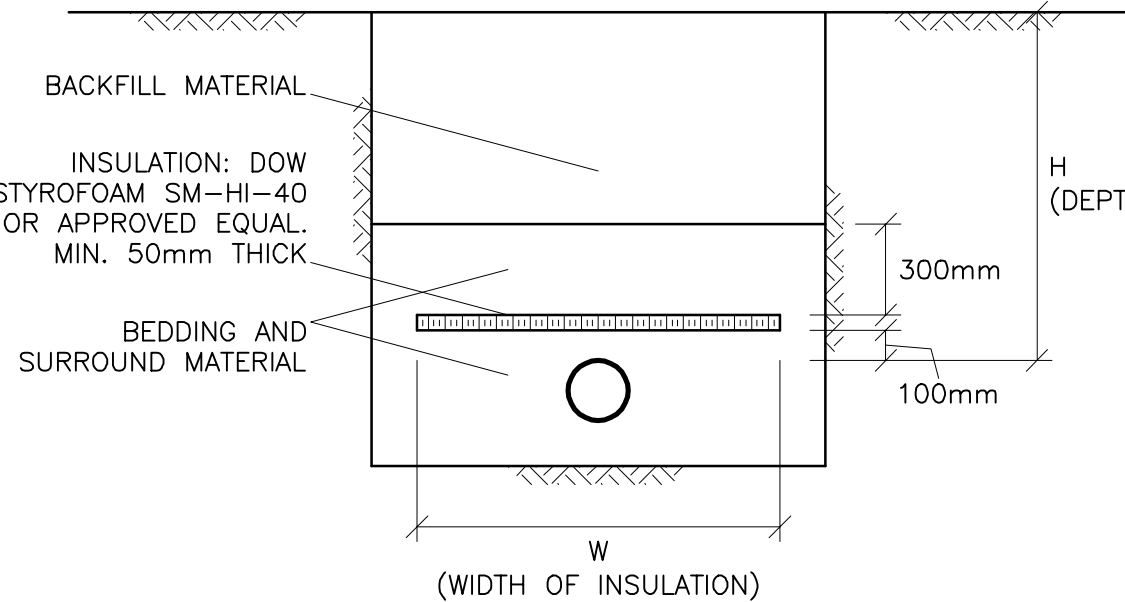
Drawn D.B.G.
H. Scale 1:200
V. Scale
Date NOV 13-25
Job No. 24022

Drawing No.
**C-3
of 13**

WATER SERVICE/WATERMAIN PROFILE TABLE

DIAMETER/MATERIAL: 150mm/PVC DR18

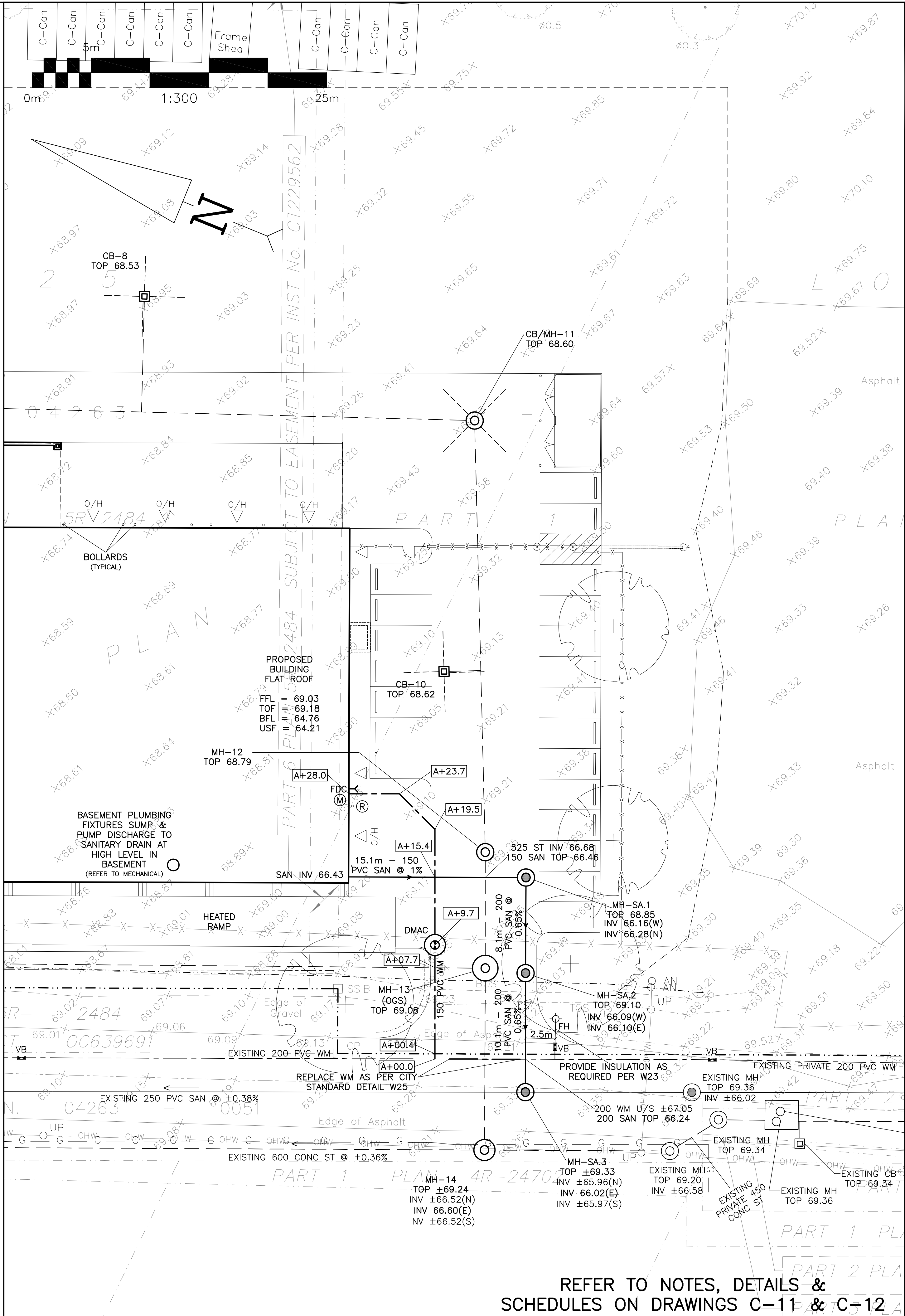
STATION	DESCRIPTION	GRADE ELEVATION	TOP OF PIPE	DEPTH OF COVER	NOTES
A+00.0	200mm x 150mm TEE CONNECTION IN 200mm MUNICIPAL WATERMAIN TO CITY OF OTTAWA STANDARDS	±69.24	±66.88	±2.36	START OF 50mm THICK INSULATION AS PER CITY OF OTTAWA DRAWING No. W22
A+00.4	-	±69.23	66.88	±2.35	ON PROPERTY LINE
A+01.0	22.5° VERTICAL BEND DOWN TO CITY OF OTTAWA STANDARDS	69.17	66.88	2.29	-
A+03.5	22.5° VERTICAL BEND UP TO CITY OF OTTAWA STANDARDS	69.12	65.86	3.26	END OF 50mm THICK INSULATION AS PER CITY OF OTTAWA DRAWING No. W22
A+07.7	-	69.06	65.86	3.20	CROSSING 300 ST INV 66.91 WM TOP 65.86 - 1050mm CLEARANCE (MIN. 500mm REQ'D)
A+09.7	DMA CHAMBER IN ACCORDANCE WITH CITY OF OTTAWA DRAWING No. W3 (TOP ELEVATION: 69.02)	69.02	66.86	3.16	-
A+11.6	22.5° VERTICAL BEND UP TO CITY OF OTTAWA STANDARDS	69.02	65.86	3.16	START OF 50mm THICK INSULATION AS PER CITY OF OTTAWA DRAWING No. W22
A+14.1	22.5° VERTICAL BEND DOWN TO CITY OF OTTAWA STANDARDS	69.02	66.91	2.11	-
A+15.4	-	68.97	66.91	2.06	CROSSING 150 SAN TOP 66.51 WM U/S 66.76 - 250mm CLEARANCE (MIN. 250mm REQ'D)
A+17.0	22.5° VERTICAL BEND DOWN TO CITY OF OTTAWA STANDARDS	68.90	66.91	1.99	-
A+18.3	22.5° VERTICAL BEND UP TO CITY OF OTTAWA STANDARDS	68.86	66.39	2.47	END OF 50mm THICK INSULATION AS PER CITY OF OTTAWA DRAWING No. W22
A+19.5	45° HORIZONTAL BEND TO CITY OF OTTAWA STANDARDS	68.80	66.39	2.41	-
A+23.7	45° HORIZONTAL BEND TO CITY OF OTTAWA STANDARDS	68.90	66.39	2.51	-
A+28.0	-	69.02	66.39	2.63	ENTRY INTO BUILDING



INSULATE WATERMAIN AS INDICATED AND WHERE DEPTH OF COVER IS LESS THAN 2400mm, PROVIDE A MINIMUM 1200mm COVER. CENTER INSULATION OVER PIPE. JOINTS BETWEEN SHEETS OF INSULATION SHALL BE STAGGERED.

INSULATION OF WATERMAINS & WATER SERVICE CONNECTIONS IN SHALLOW TRENCHES
N.T.S

H (DEPTH OF COVER)	INSULATION THICKNESS	W (WIDTH OF INSULATION)
1800 TO 2400mm	50mm	1200mm
1500 TO 1800mm	75mm	1800mm
1200 TO 1500mm	100mm	2400mm



REFER TO NOTES, DETAILS & SCHEDULES ON DRAWINGS C-11 & C-12

LEGEND

FFL	FIRST FLOOR ELEVATION
TOF	TOP OF FOUNDATION
BFL	BASEMENT FLOOR ELEVATION
USF	UNDERSIDE OF FOOTING
---	PROPERTY LINE
CB	CATCH BASIN
MH	STORM MANHOLE
CB/MH	CATCH BASIN/MANHOLE
MH	SANITARY MANHOLE
FH	FIRE HYDRANT
FDC	FIRE DEPARTMENT CONNECTION
CS	CURB STOP & STANDPOST
VB	VALVE & VALVE BOX
M	WATER METER
R	REMOTE WATER METER
SAN	SANITARY SEWER
ST	STORM SEWER
WS/WM	WATER SERVICE/WATERMAIN
SPL	SPRINGLINE OF PIPE
INV	INVERT OF PIPE
---	CENTERLINE OF SWALE
---	150mm BARRIER CURB
D.C	DEPRESSED CURB
---	ROAD CUT REINSTATEMENT

KEY PLAN

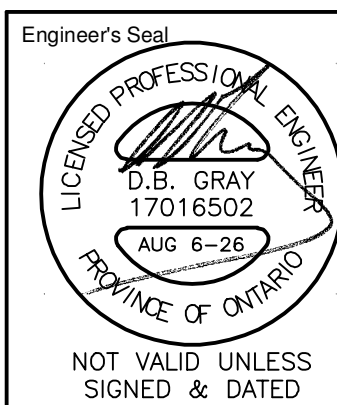


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d.gray@dbgrayengineering.com

Project
**PROPOSED DICKIE MOORE
RENTALS PROPERTY
REDEVELOPMENT
1547 LAGAN WAY
OTTAWA, ONTARIO**

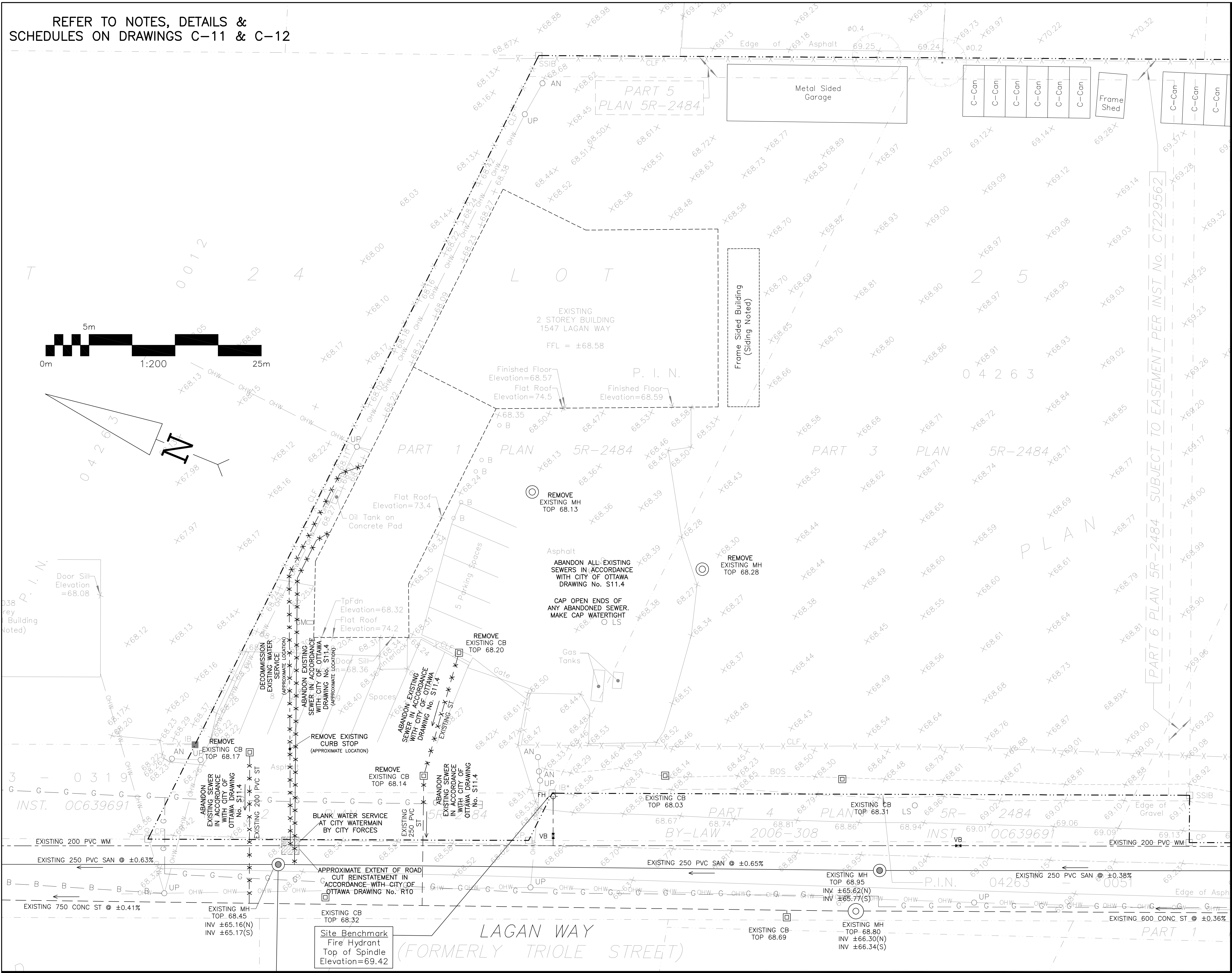
Drawing Title
**SITE SERVICING PLAN
(SANITARY AND WATER)**



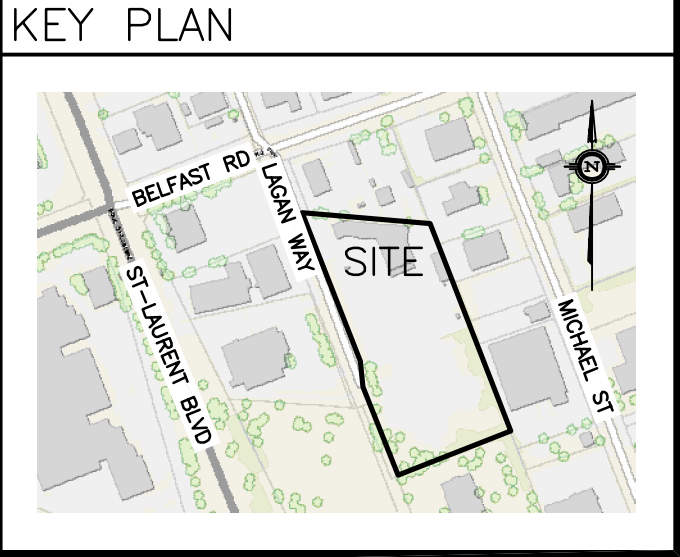
Drawn D.B.G.
H. Scale 1:200
V. Scale
Date NOV 13-25
Job No. 24022

Drawing No.
**C-4
of 13**

REFER TO NOTES, DETAILS &
SCHEDULES ON DRAWINGS C-11 & C-12



LEGEND	
FFL	FIRST FLOOR ELEVATION
TOF	TOP OF FOUNDATION
BFL	BASEMENT FLOOR ELEVATION
USF	UNDERSIDE OF FOOTING
---	PROPERTY LINE
CB	CATCH BASIN
MH	STORM MANHOLE
CB/MH	CATCH BASIN/MANHOLE
MH	SANITARY MANHOLE
FH	FIRE HYDRANT
FDC	FIRE DEPARTMENT CONNECTION
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SAN	SANITARY SEWER
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WS/WM	WATER SERVICE/WATERMAIN
SPL	SPRINGLINE OF PIPE
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---	CENTERLINE OF SWALE
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D.C.	DEPRESSED CURB
---	ROAD CUT REINSTATEMENT



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d.gray@dbgrayengineering.com

Project
**PROPOSED DICKIE MOORE
RENTALS PROPERTY
REDEVELOPMENT
1547 LAGAN WAY
OTTAWA, ONTARIO**

Drawing Title
**EXISTING CONDITIONS,
REMOVALS &
DECOMMISSIONING PLAN**

Engineer's Seal

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SIGNED & DATED

Drawn D.B.G.
H. Scale 1:200
V. Scale
Date NOV 13-25
Job No. 24022

Drawing No.
**C-5
of 13**

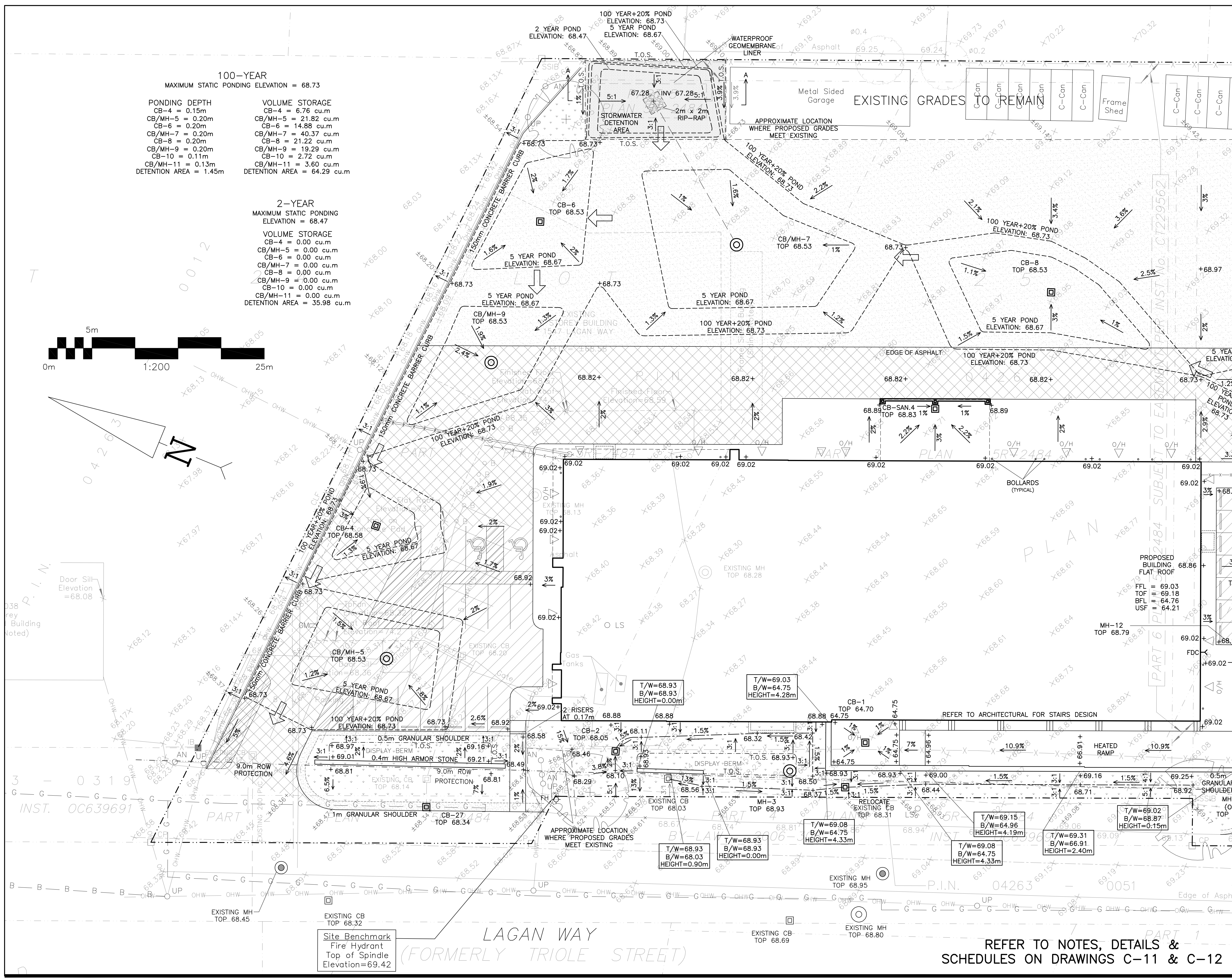
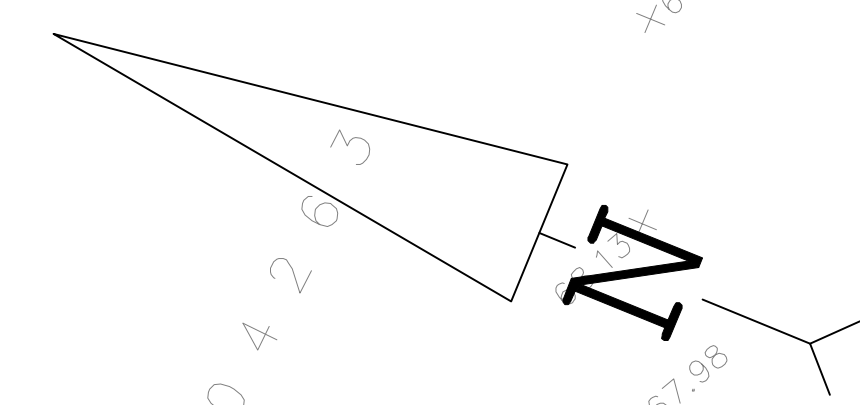
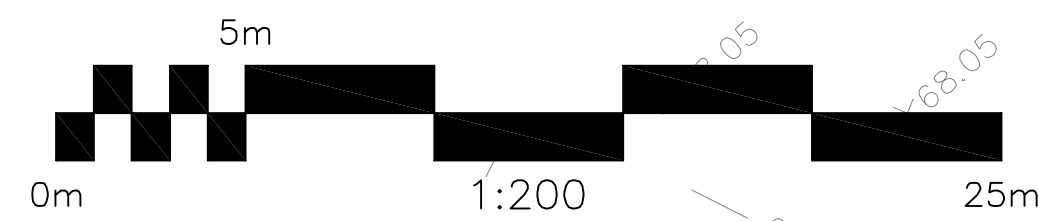
100-YEAR
MAXIMUM STATIC PONDING ELEVATION = 68.73

PONDING DEPTH
CB-4 = 0.15m
CB/MH-5 = 0.20m
CB-6 = 0.20m
CB/MH-7 = 0.20m
CB-8 = 0.20m
CB/MH-9 = 0.20m
CB-10 = 0.11m
CB/MH-11 = 0.13m
DETENTION AREA = 1.45m

VOLUME STORAGE
CB-4 = 6.76 cu.m
CB/MH-5 = 21.82 cu.m
CB-6 = 14.88 cu.m
CB/MH-7 = 40.37 cu.m
CB-8 = 21.22 cu.m
CB/MH-9 = 19.29 cu.m
CB-10 = 2.72 cu.m
CB/MH-11 = 3.60 cu.m
DETENTION AREA = 64.29 cu.m

2-YEAR
MAXIMUM STATIC PONDING
ELEVATION = 68.47

VOLUME STORAGE
CB-4 = 0.00 cu.m
CB/MH-5 = 0.00 cu.m
CB-6 = 0.00 cu.m
CB/MH-7 = 0.00 cu.m
CB-8 = 0.00 cu.m
CB/MH-9 = 0.00 cu.m
CB-10 = 0.00 cu.m
CB/MH-11 = 0.00 cu.m
DETENTION AREA = 35.98 cu.m



- LEGEND**
- FFL FIRST FLOOR ELEVATION
 - TOF TOP OF FOUNDATION
 - BFL BASEMENT FLOOR ELEVATION
 - USF UNDERSIDE OF FOOTING
 - PROPERTY LINE
 - CB CATCH BASIN
 - MH STORM MANHOLE
 - CB/MH CATCH BASIN/MANHOLE
 - MH SANITARY MANHOLE
 - FH FIRE HYDRANT
 - FDC FIRE DEPARTMENT CONNECTION
 - EXISTING GRADE ELEVATION
 - +99.99 PROPOSED GRADE ELEVATION
 - 2% EXISTING SLOPE OF GRADE
 - 2% PROPOSED SLOPE OF GRADE
 - EMERGENCY OVERLAND FLOW
 - CENTERLINE OF SWALE
 - 150mm BARRIER CURB
 - DEPRESSED CURB
 - SILT FENCE BARRIER
 - GRANULAR PAVEMENT
 - LIGHT-DUTY PAVEMENT
 - HEAVY-DUTY PAVEMENT
 - LANDSCAPE

KEY PLAN



No.	DATE	REVISION
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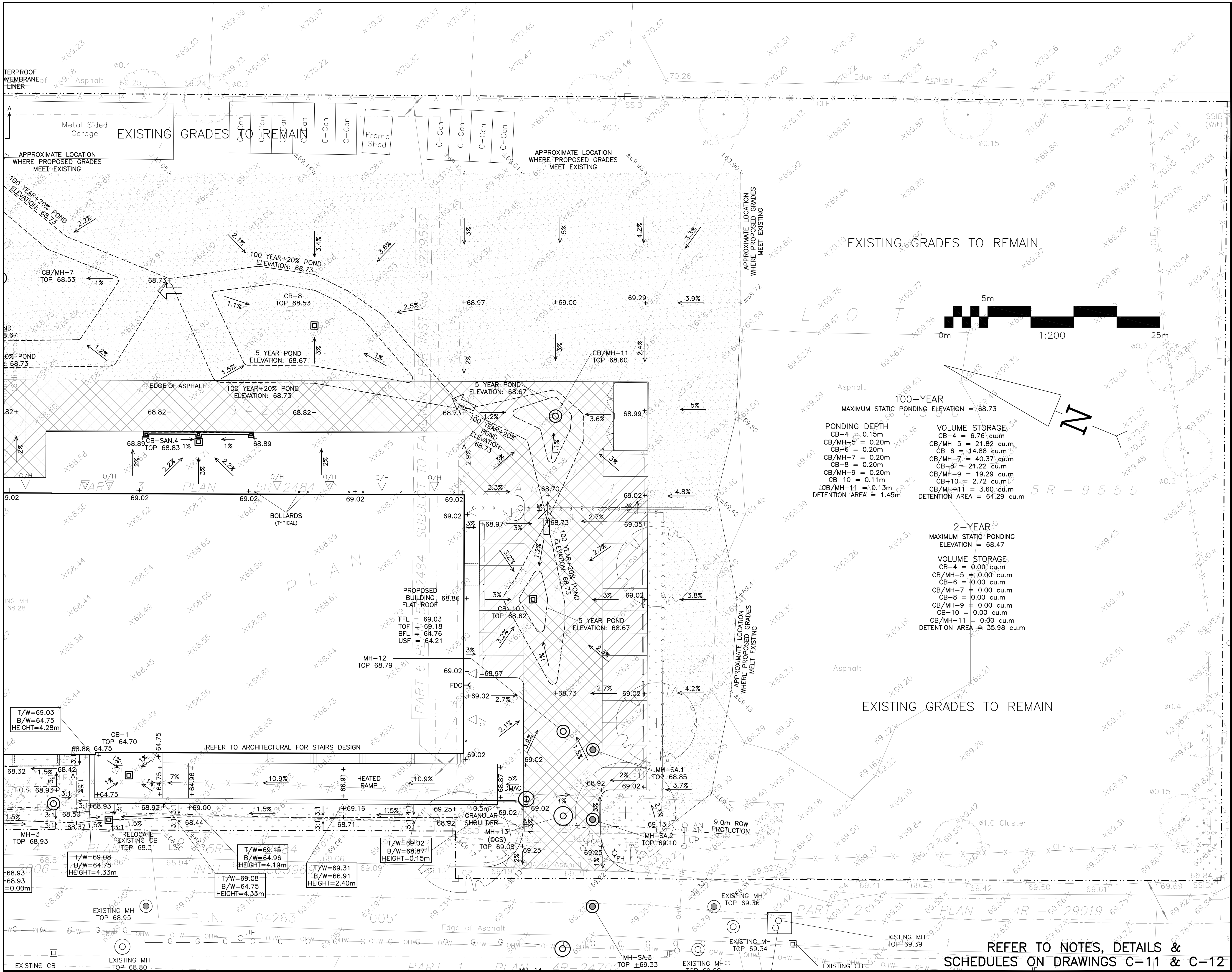
Project
**PROPOSED DICKIE MOORE
RENTALS PROPERTY
REDEVELOPMENT
1547 LAGAN WAY
OTTAWA, ONTARIO**

**GRADING PLAN
(NORTH AREA)**

Engineer's Seal

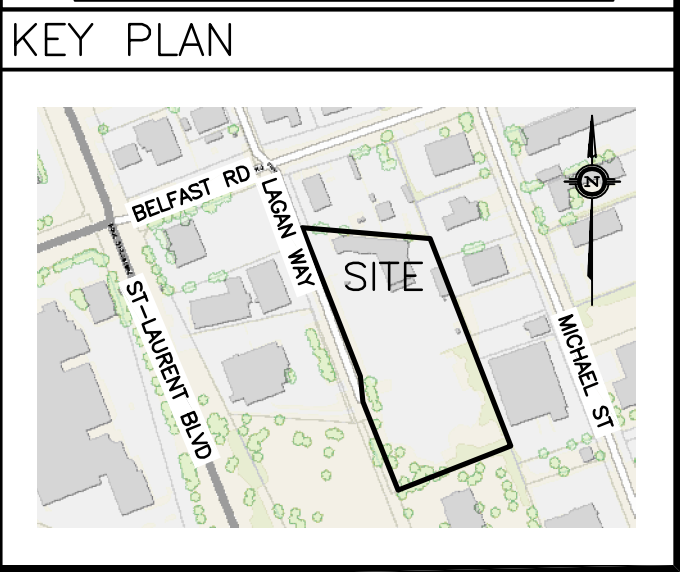
Drawn D.B.G.
H. Scale 1:200
V. Scale
Date NOV 13-25
Job No. 24022

Drawing No.
C-6
of 13



LEGEND

FFL FIRST FLOOR ELEVATION
TOF TOP OF FOUNDATION
BFL BASEMENT FLOOR ELEVATION
USF UNDERSIDE OF FOOTING
--- PROPERTY LINE
CB CATCH BASIN
MH STORM MANHOLE
CB/MH CATCH BASIN/MANHOLE
MH SANITARY MANHOLE
FH FIRE HYDRANT
FDC FIRE DEPARTMENT CONNECTION
--- EXISTING GRADE ELEVATION
+--- PROPOSED GRADE ELEVATION
--- EXISTING SLOPE OF GRADE
--- PROPOSED SLOPE OF GRADE
--- EMERGENCY OVERLAND FLOW
--- CENTERLINE OF SWALE
--- 150mm BARRIER CURB
--- DEPRESSED CURB
--- SILT FENCE BARRIER
--- GRANULAR PAVEMENT
--- LIGHT-DUTY PAVEMENT
--- HEAVY-DUTY PAVEMENT
--- LANDSCAPE



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Project
**PROPOSED DICKIE MOORE
RENTALS PROPERTY
REDEVELOPMENT
1547 LAGAN WAY
OTTAWA, ONTARIO**

Drawing Title
**GRADING PLAN
(SOUTH AREA)**

Engineer's Seal

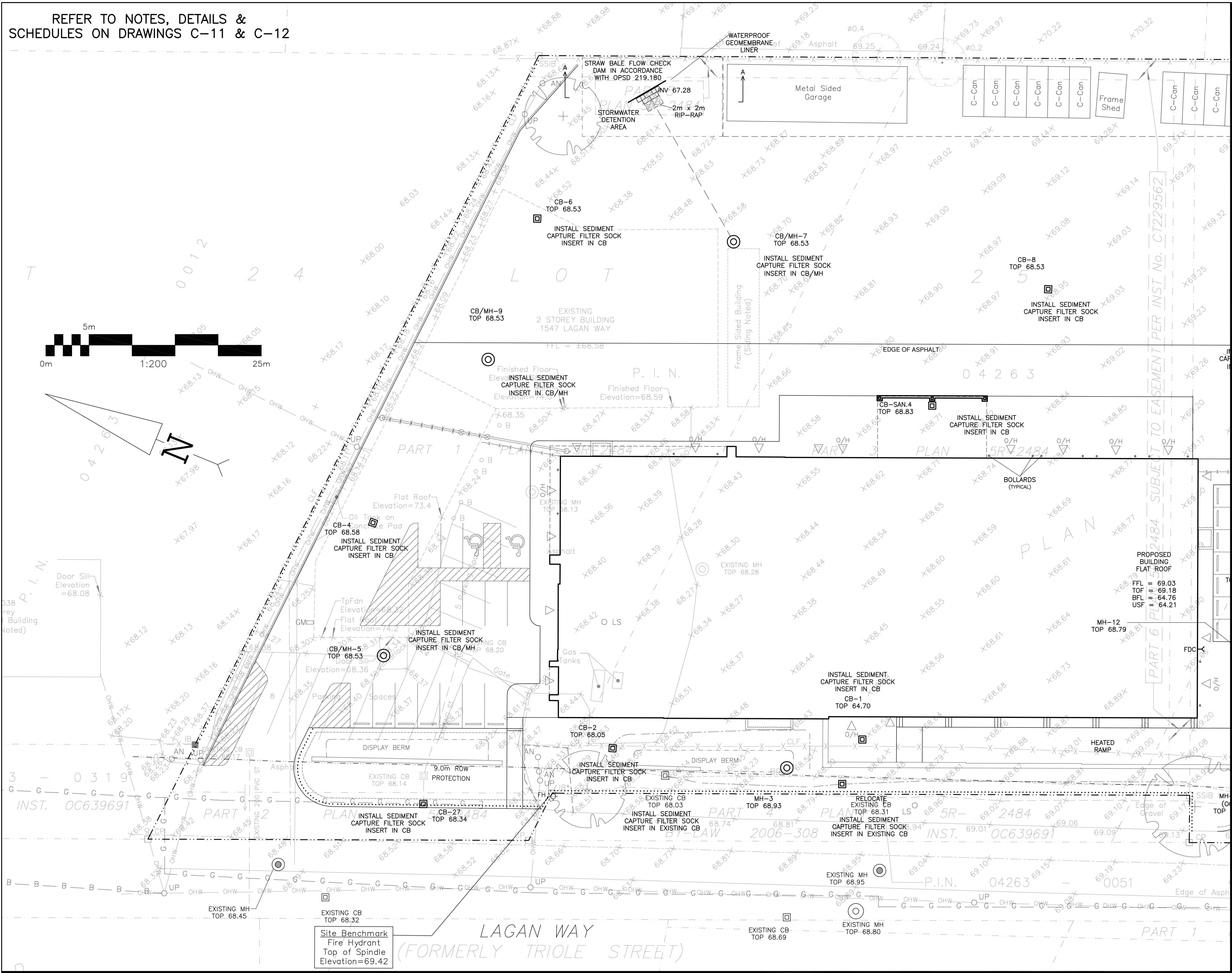
Drawn D.B.G.
H. Scale 1:200
V. Scale
Date NOV 13-25
Job No. 24022

Drawing No.
**C-7
of 13**

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**REFER TO NOTES, DETAILS &
SCHEDULES ON DRAWINGS C-11 & C-12**

REFER TO NOTES, DETAILS &
SCHEDULES ON DRAWINGS C-11 & C-12



LEGEND

FFL FIRST FLOOR ELEVATION
TOP TOP OF FOUNDATION
BFL BASEMENT FLOOR ELEVATION
USF UNDERSIDE OF FOOTING

----- PROPERTY LINE

CB CATCH BASIN

MH STORM MANHOLE

CB/MH CATCH BASIN/MANHOLE

MH SANITARY MANHOLE

FH FIRE HYDRANT

FDC FIRE DEPARTMENT CONNECTION

----- EXISTING GRADE ELEVATION

+99.99 PROPOSED GRADE ELEVATION

2% EXISTING SLOPE OF GRADE

2% PROPOSED SLOPE OF GRADE

EMERGENCY OVERLAND FLOW

----- CENTERLINE OF SWALE

150mm BARRIER CURB

D.C. DEPRESSED CURB

----- SILT FENCE BARRIER

GRANULAR PAVEMENT

LIGHT-DUTY PAVEMENT

HEAVY-DUTY PAVEMENT

LANDSCAPE

KEY PLAN

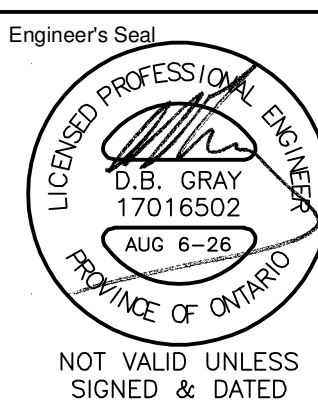


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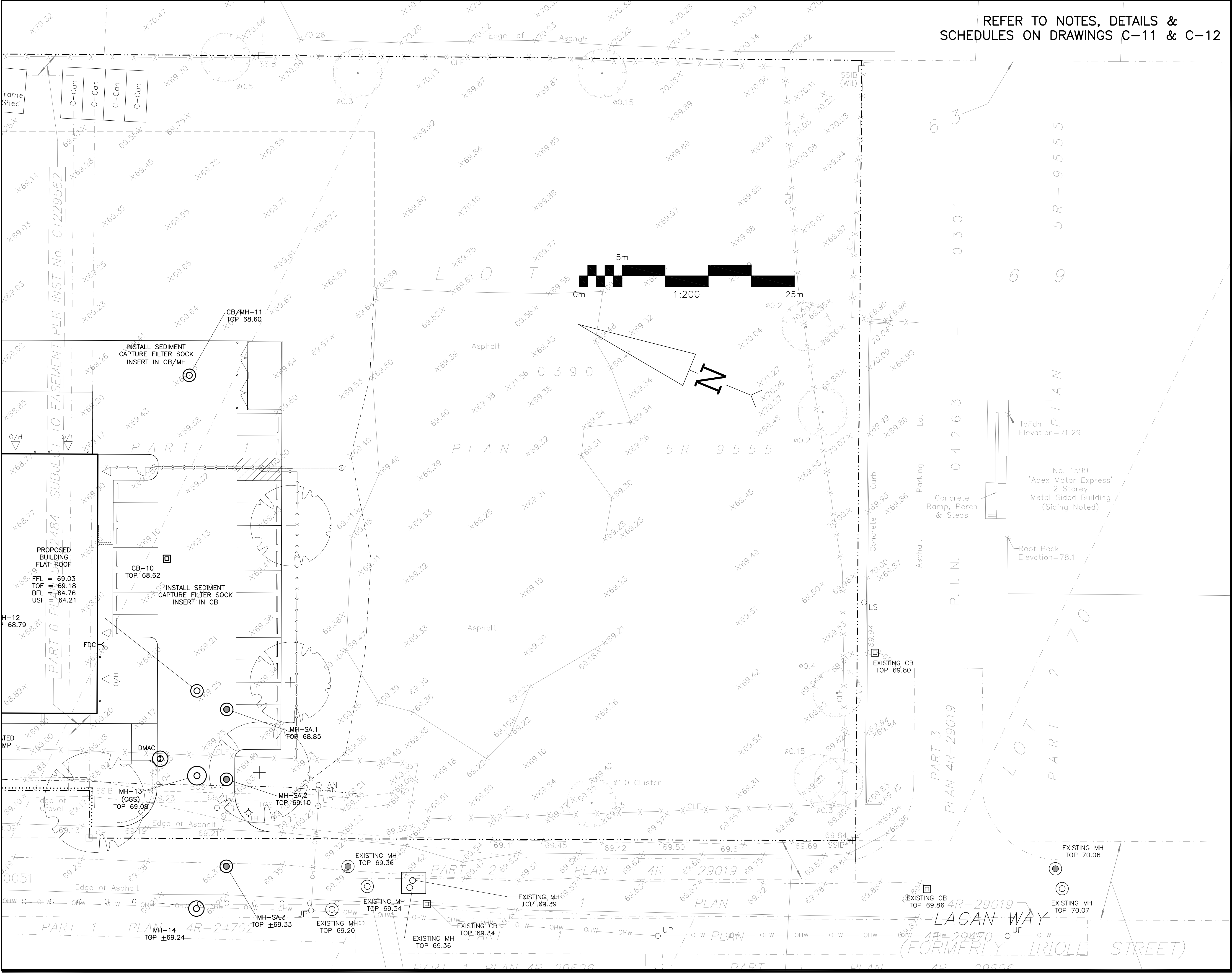
Project
**PROPOSED DICKIE MOORE
RENTALS PROPERTY
REDEVELOPMENT
1547 LAGAN WAY
OTTAWA, ONTARIO**

Drawing Title
**EROSION & SEDIMENT
CONTROL PLAN
(NORTH AREA)**



Drawn D.B.G.
H. Scale 1:200
V. Scale
Date NOV 13-25
Job No. 24022

Drawing No.
**C-8
of 13**

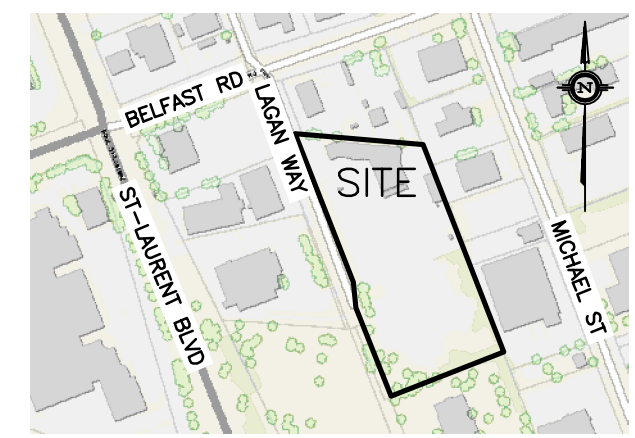


REFER TO NOTES, DETAILS &
SCHEDULES ON DRAWINGS C-11 & C-12

LEGEND

- FFL FIRST FLOOR ELEVATION
- TOF TOP OF FOUNDATION
- BFL BASEMENT FLOOR ELEVATION
- USF UNDERSIDE OF FOOTING
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- CB CATCH BASIN
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- CB/MH CATCH BASIN/MANHOLE
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- FH FIRE HYDRANT
- FDC FIRE DEPARTMENT CONNECTION
- EXISTING GRADE ELEVATION
- +99.99 PROPOSED GRADE ELEVATION
- 2% EXISTING SLOPE OF GRADE
- 2% PROPOSED SLOPE OF GRADE
- EMERGENCY OVERLAND FLOW
- CENTERLINE OF SWALE
- 150mm BARRIER CURB
- D.C. DEPRESSED CURB
- SILT FENCE BARRIER
- GRANULAR PAVEMENT
- LIGHT-DUTY PAVEMENT
- HEAVY-DUTY PAVEMENT
- LANDSCAPE

KEY PLAN



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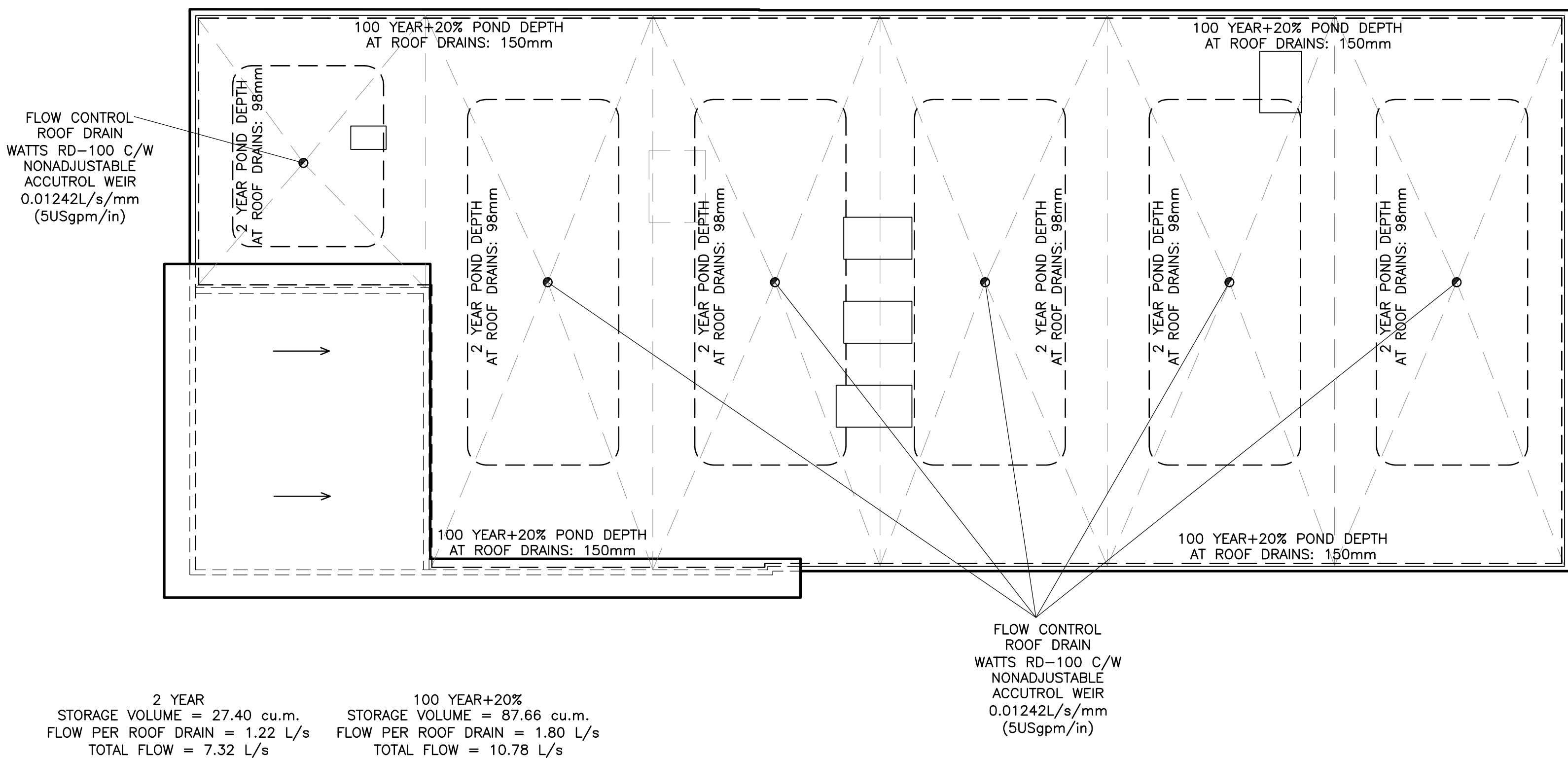
Drawing Title
**EROSION & SEDIMENT
CONTROL PLAN
(SOUTH AREA)**

Engineer's Seal

NOT VALID UNLESS
SIGNED & DATED

Drawn D.B.G.
H. Scale 1:200
V. Scale
Date NOV 13-25
Job No. 24022

Drawing No.
**C-9
of 13**



ROOF DRAINAGE PLAN

REFER TO NOTES, DETAILS & SCHEDULES ON DRAWINGS C-11 & C-12

KEY PLAN



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No.	DATE	REVISION

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Project
**PROPOSED DICKIE MOORE
RENTALS PROPERTY
REDEVELOPMENT
1547 LAGAN WAY
OTTAWA, ONTARIO**

Drawing Title
ROOF DRAINAGE PLAN

Engineer's Seal

Drawn: D.B.G.
H. Scale: 1:200
V. Scale:
Date: NOV 13-25
Job No.: 24022

Drawing No.
C-10
of 13

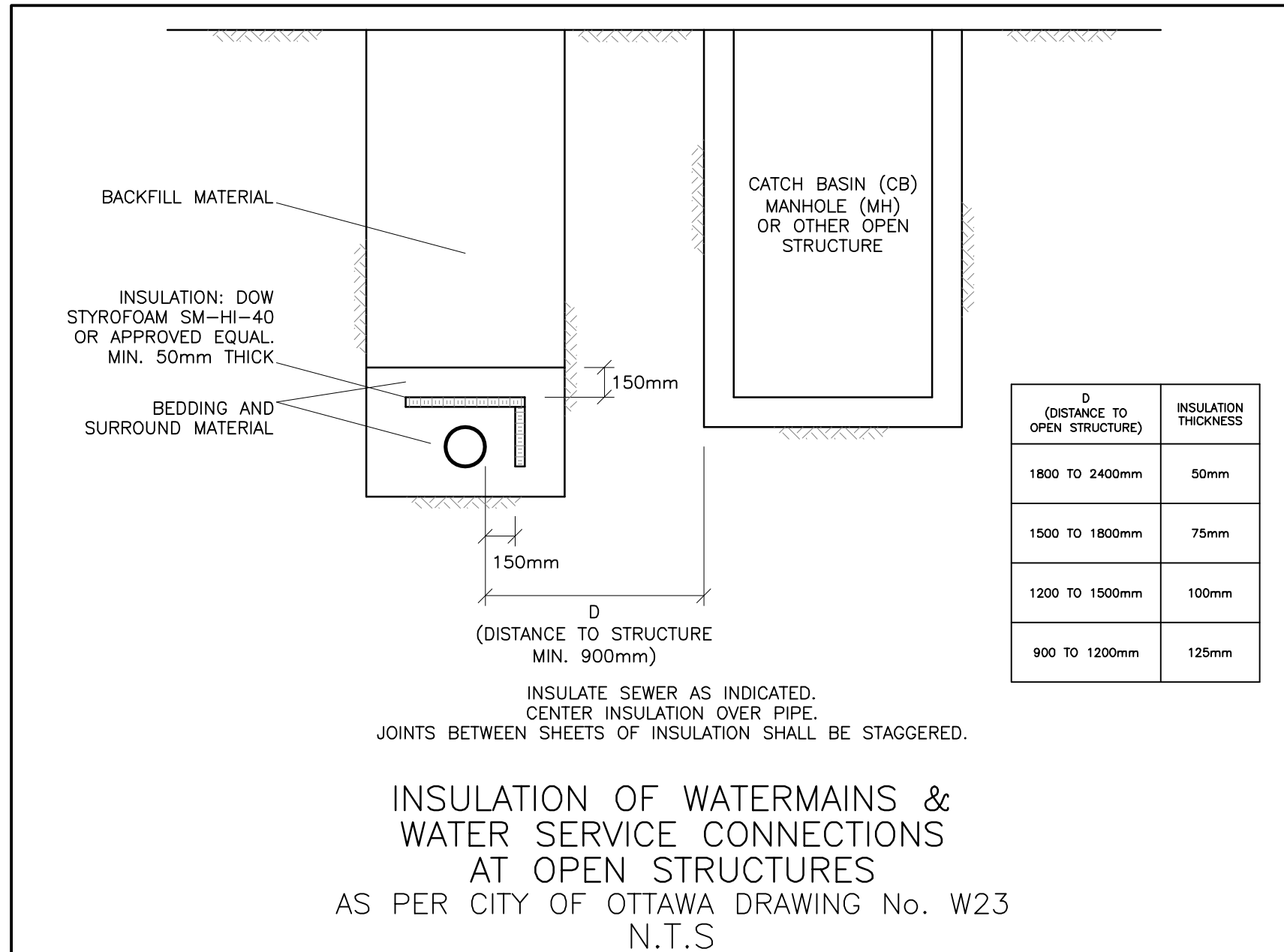
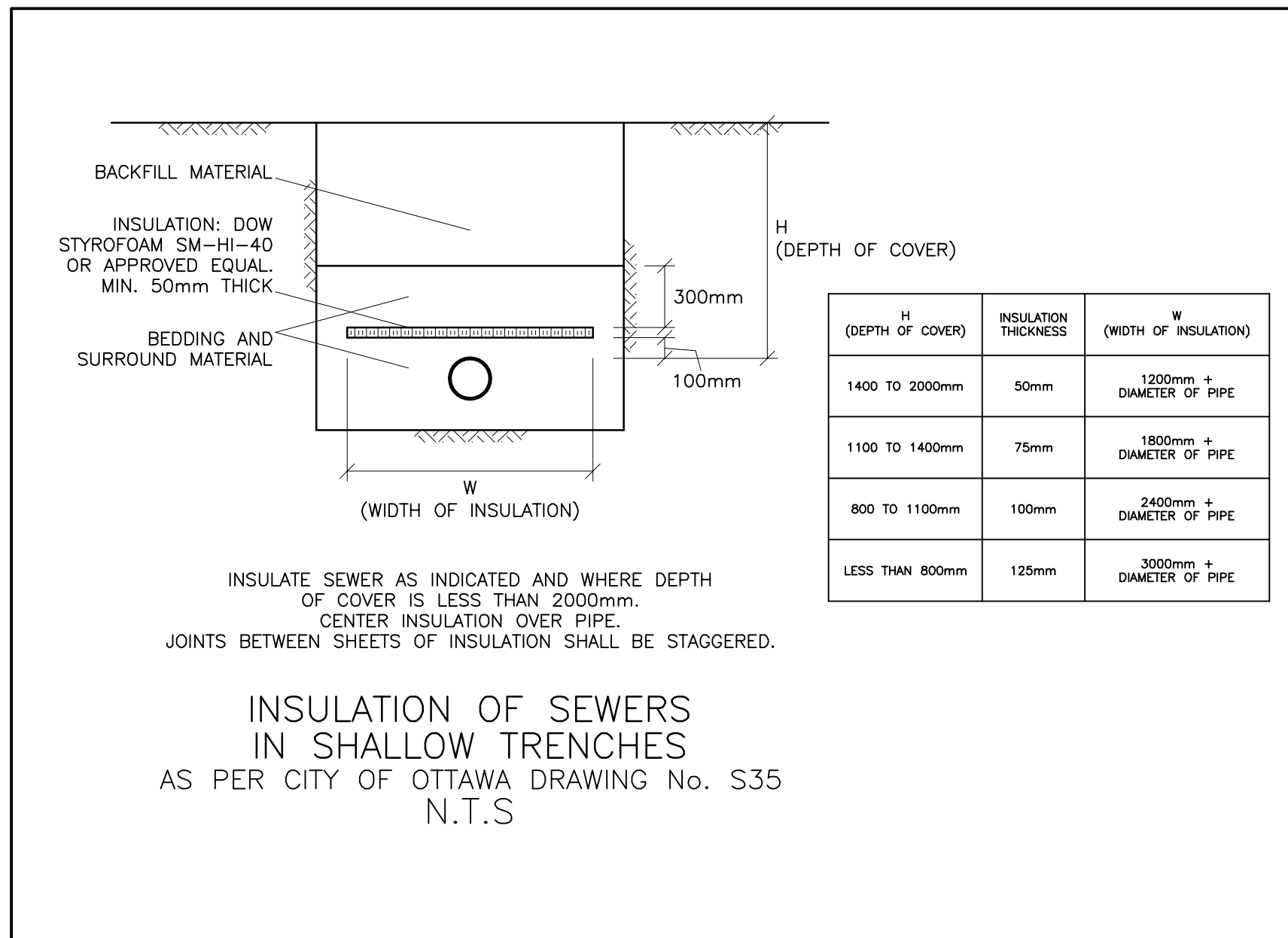
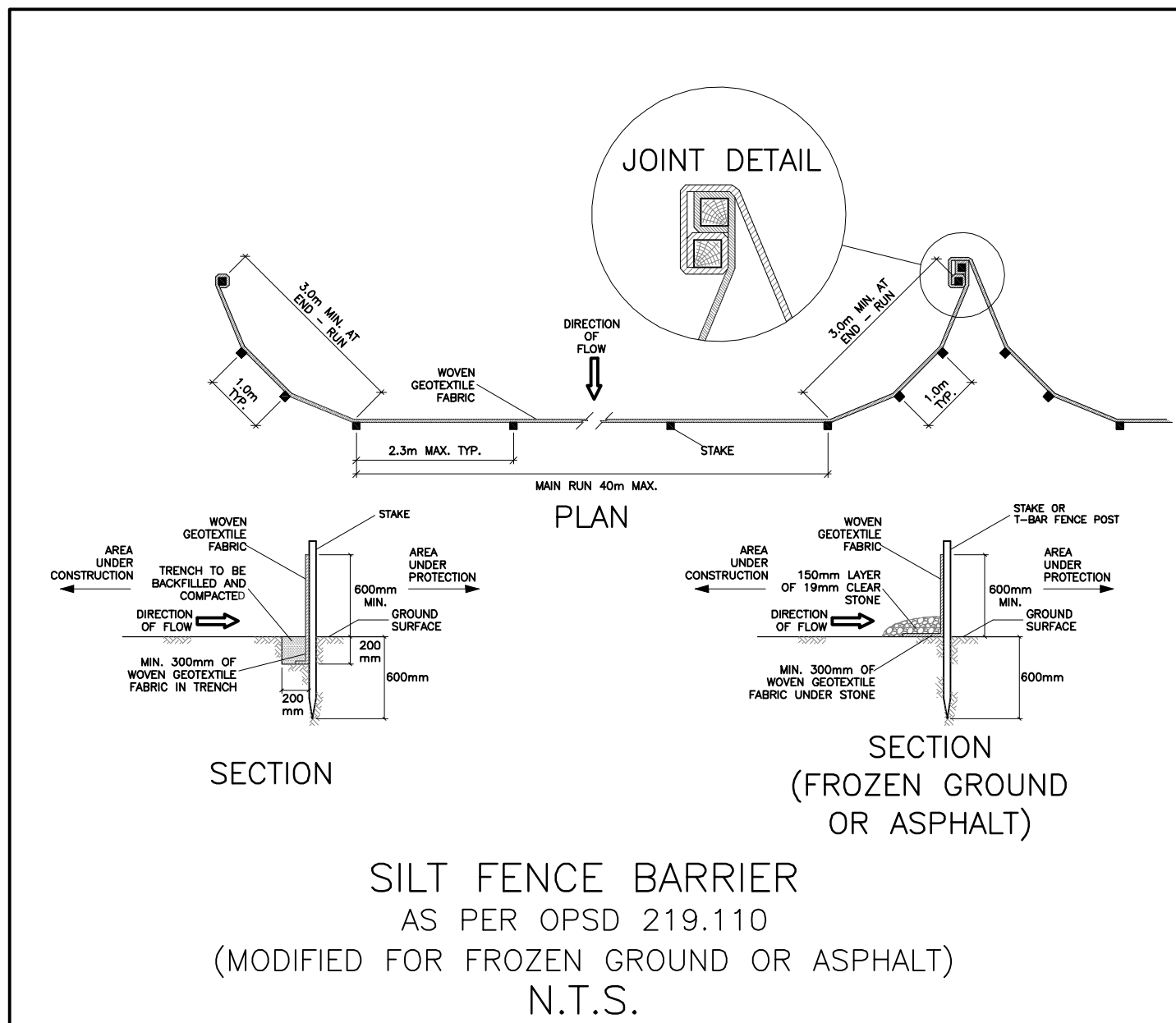
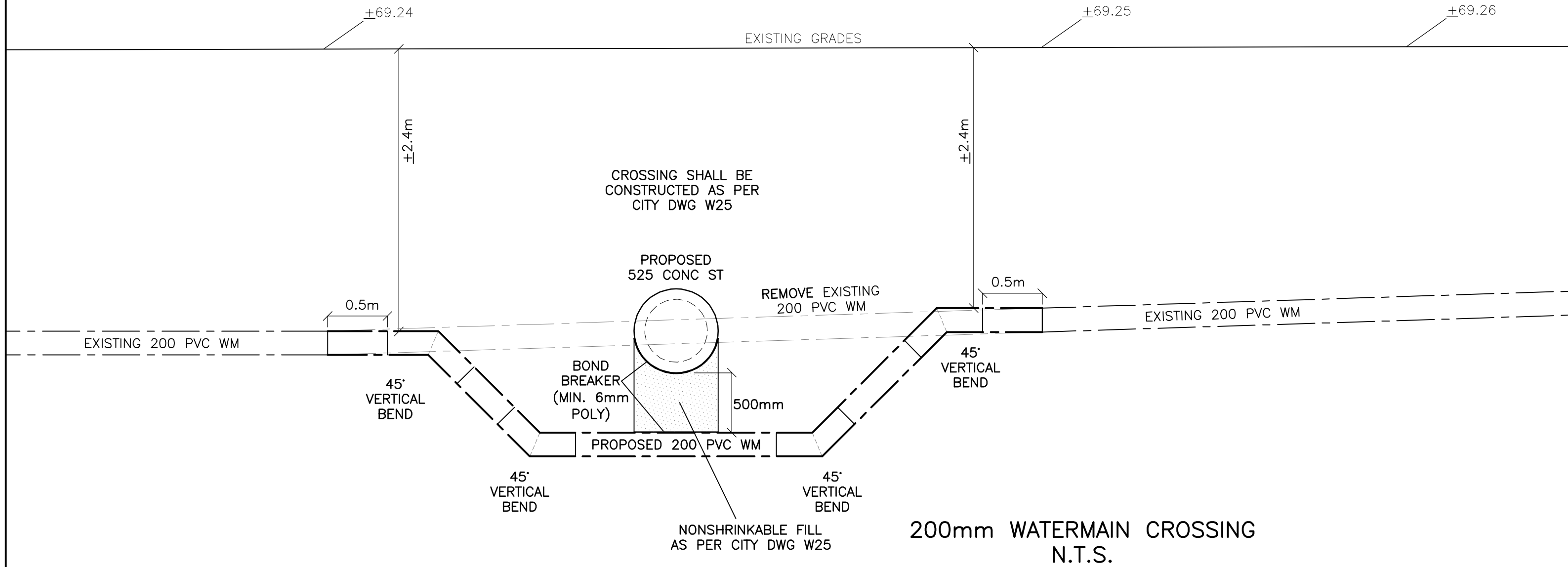
CATCH BASIN & MANHOLE SCHEDULE

(SUBMIT SHOP DRAWINGS OF ALL CATCH BASINS & MANHOLES TO ENGINEER FOR APPROVAL)

REF	TOP	SIZE	TYPE	INVERT AT INLET	INVERT AT OUTLET	NOTES
STORM SEWER						
CB-1	64.70	600mm x 600mm	PRECAST CONCRETE CATCH-BASIN	-	62.65	TO OPSD 705.010 & CITY OF OTTAWA STANDARDS - FRAME & COVER TO CITY OF OTTAWA DRAWING No. S19
CB-2	68.05	600mm x 600mm	PRECAST CONCRETE CATCH-BASIN	-	67.20	TO OPSD 705.010 & CITY OF OTTAWA STANDARDS - FRAME & COVER TO CITY OF OTTAWA DRAWING No. S19
MH-3	68.93	1200mm	PRECAST CONCRETE MANHOLE	67.12(N)	67.11(S)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS - FRAME & COVER TO CITY OF OTTAWA DRAWING No. S25 & S24.1 OR OPSD 401.010
CB-4	68.58	600mm x 600mm	PRECAST CONCRETE CATCH-BASIN	-	67.09	TO OPSD 705.010 & CITY OF OTTAWA STANDARDS - FRAME & COVER TO CITY OF OTTAWA DRAWING No. S19
CB/MH-5	68.53	1200mm	PRECAST CONCRETE CATCH-BASIN/MANHOLE	-	67.12	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS - FRAME & COVER TO CITY OF OTTAWA DRAWING No. S25 & S28.1 OR OPSD 401.010
CB-6	68.53	600mm x 600mm	PRECAST CONCRETE CATCH-BASIN	-	67.25	TO OPSD 705.010 & CITY OF OTTAWA STANDARDS - FRAME & COVER TO CITY OF OTTAWA DRAWING No. S19
CB/MH-7	68.53	600mm x 600mm	PRECAST CONCRETE CATCH-BASIN/MANHOLE	67.20(NE)	67.20(W)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS - FRAME & COVER TO CITY OF OTTAWA DRAWING No. S25 & S28.1 OR OPSD 401.010
CB-8	68.53	600mm x 600mm	PRECAST CONCRETE CATCH-BASIN	-	67.16	TO OPSD 705.010 & CITY OF OTTAWA STANDARDS - FRAME & COVER TO CITY OF OTTAWA DRAWING No. S19
CB/MH-9	68.53	1200mm	PRECAST CONCRETE CATCH-BASIN/MANHOLE	66.96(W)	66.96(S)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS - FRAME & COVER TO CITY OF OTTAWA DRAWING No. S25 & S28.1 OR OPSD 401.010
CB-10	68.62	600mm x 600mm	PRECAST CONCRETE CATCH-BASIN	-	66.96	TO OPSD 705.010 & CITY OF OTTAWA STANDARDS - FRAME & COVER TO CITY OF OTTAWA DRAWING No. S19
CB/MH-11	68.60	1200mm	PRECAST CONCRETE CATCH-BASIN/MANHOLE	66.77(N)	66.77(W)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS - FRAME & COVER TO CITY OF OTTAWA DRAWING No. S25 & S28.1 OR OPSD 401.010
MH-12	68.79	1200mm	PRECAST CONCRETE MANHOLE	66.69(E)	66.69(W)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS - FRAME & COVER TO CITY OF OTTAWA DRAWING No. S25 & S24.1 OR OPSD 401.010 INSTALL ICD IN OUTLET PIPE
MH-13	69.08	CDS PMSU3020-6	PRECAST CONCRETE MANHOLE	66.67(E) 66.89(N)	66.66(W)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS EXCEPT WITH A DEEP SUMP AS REQUIRED BY CDS
MH-14	±69.24	1500mm	PRECAST CONCRETE MANHOLE	±66.52(S) 66.60(E)	±66.52(N)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS - FRAME & COVER TO CITY OF OTTAWA DRAWING No. S25 & S24.1 OR OPSD 401.010
CB-27	68.34	600mm x 600mm	PRECAST CONCRETE CATCH-BASIN	-	UNKNOWN	TO OPSD 705.010 & CITY OF OTTAWA STANDARDS - FRAME & COVER TO CITY OF OTTAWA DRAWING No. S19

SANITARY SEWER

MH-SA.1	68.85	1200mm	PRECAST CONCRETE MANHOLE	66.28(N)	66.16(W)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS - FRAME & COVER TO CITY OF OTTAWA DRAWING No. S25 & S24 OR OPSD 401.010
MH-SA.2	69.10	1200mm	PRECAST CONCRETE MANHOLE	66.10(E)	66.09(W)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS - FRAME & COVER TO CITY OF OTTAWA DRAWING No. S25 & S24 OR OPSD 401.010
MH-SA.3	±69.33	1200mm	PRECAST CONCRETE MANHOLE	±65.97(S) 66.02(E)	±65.96(N)	TO OPSD 701.010 & CITY OF OTTAWA STANDARDS - FRAME & COVER TO CITY OF OTTAWA DRAWING No. S25 & S24 OR OPSD 401.010
CB-SAN.4	68.83	600mm x 600mm	PRECAST CONCRETE CATCH-BASIN	-	66.58	TO OPSD 705.010 & CITY OF OTTAWA STANDARDS - FRAME & COVER TO CITY OF OTTAWA DRAWING No. S19



KEY PLAN



No.	DATE	REVISION
5	AUG 6-26	RE-ISSUED FOR APPROVAL
4	MAY 15-26	ISSUED FOR TENDER
3	APR 7-26	RE-ISSUED FOR APPROVAL
2	DEC 16-25	ISSUED FOR APPROVAL
1	NOV 13-25	ISSUED FOR COORDINATION

D. B. GRAY ENGINEERING INC.
Stormwater Management - Grading & Drainage - Storm & Sanitary Sewers - Watermain
700 Long Point Circle
Ottawa, Ontario
613-425-8044
d.gray@dbgrayengineering.com

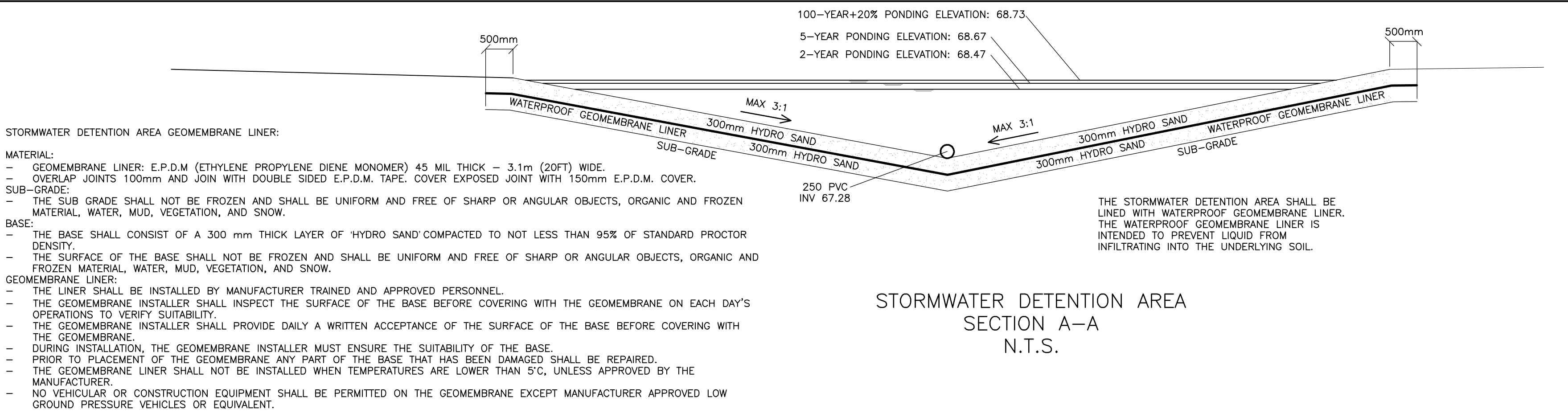
Project
**PROPOSED DICKIE MOORE
RENTALS PROPERTY
REDEVELOPMENT
1547 LAGAN WAY
OTTAWA, ONTARIO**

Drawing Title
**DETAILS &
SCHEDULE**

Engineer's Seal
D.B. GRAY
17016502
AUG 6-26
PROVINCE OF ONTARIO
NOT VALID UNLESS
SIGNED & DATED

Drawn
H. Scale
V. Scale
Date
Job No.

Drawing No.
**C-11
of 13**



1. GENERAL

- 1.1 USE BAR SCALE TO CONFIRM ACTUAL PLOT SCALE. EXISTING AND NEW ELEVATIONS AND INVERTS SHOWN ARE GEODETIC AND ARE IN METERS. ALL PIPE DIMENSIONS ARE NOMINAL UNLESS OTHERWISE NOTED.
- 1.2 UNLESS OTHERWISE STATED "ENGINEER" REFERS TO D. B. GRAY ENGINEERING INC.
- 1.3 SITE BOUNDARIES AND EXISTING GRADES AND OTHER FEATURES DERIVED FROM TOPOGRAPHIC SURVEY PREPARED BY FARLEY, SMITH & DENIS SURVEYING LTD. JOB NO. 148-24. IT IS THE RESPONSIBILITY OF THE USER OF THE SURVEY PLAN AND THESE DRAWINGS TO VERIFY THAT THE JOB BENCHMARK HAS NOT BEEN ALTERED OR DISTURBED AND THAT ITS RELATIVE ELEVATION AND DESCRIPTION AGREE WITH THE INFORMATION SHOWN ON SURVEY PLAN AND THESE DRAWINGS.
- 1.4 REFER TO ARCHITECTURAL AND LANDSCAPE SITE PLANS FOR EXACT LOCATIONS OF BUILDINGS, PAVED AREAS, SIDEWALKS, PLANTERS ETC. LAYOUT SHALL BE COMPLETED BY THE CONTRACTOR AND SHALL BE REVIEWED BY THE OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION. AT ALL TIMES THE CONTRACTOR IS RESPONSIBLE FOR THE ACCURACY OF THE LAYOUT.
- 1.5 REFER TO TREE CONSERVATION REPORT FOR TREE PROTECTION REQUIREMENTS.
- 1.6 REFERENCE THE LATEST REVISION AND ALL ADDENDUMS OF THE GEOTECHNICAL INVESTIGATION BY PATERSON GROUP INC. FILE: P67133-1. CONSTRUCTION SHALL CONFORM TO THE GEOTECHNICAL INVESTIGATION TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER INCLUDING: SUB-GRADE PREPARATION AND CONSTRUCTION OF THE PAVEMENT STRUCTURE; EXCAVATION AND BACKFILLING; SERVICE TRENCH EXCAVATION AND PIPE BEDDING AND BACKFILL; AND THE COMPACTION OF MATERIALS.
- 1.7 DRAWINGS ARE TO BE READ IN CONJUNCTION WITH SITE SERVICING STUDY & STORMWATER MANAGEMENT REPORT NO. 20069 PREPARED BY D. B. GRAY ENGINEERING INC.
- 1.8 CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE OCCUPATIONAL HEALTH AND SAFETY ACT AND CURRENT CITY OF OTTAWA STANDARD SPECIFICATIONS AND DRAWINGS.
- 1.9 ONTARIO PROVINCIAL STANDARD SPECIFICATIONS AND DRAWINGS SHALL APPLY WHERE NO CITY OF OTTAWA STANDARD SPECIFICATIONS OR DRAWINGS ARE AVAILABLE.
- 1.10 REINSTATE AREAS DISTURBED BY CONSTRUCTION TO PRE-CONSTRUCTION CONDITIONS.
- 1.11 REINSTATE CITY PROPERTIES TO CITY STANDARDS AND TO CITY OF OTTAWA'S SATISFACTION.

2. EROSION AND SEDIMENT CONTROL PLAN

- 2.1 THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES TO PROVIDE PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATER COURSE DURING CONSTRUCTION ACTIVITIES. THIS INCLUDES LIMITING THE AMOUNT OF EXPOSED SOIL, USING SEDIMENT CAPTURE FILTER SOCK INSERTS IN CATCH BASINS AND MANHOLES AND INSTALLING SILT FENCES AND OTHER EFFECTIVE SEDIMENT TRAPS. DO NOT ALLOW EROSION AND SEDIMENT CONTROL MEASURES. DO NOT REMOVE UNTIL CONSTRUCTION IS COMPLETE.
- 2.2 PRIOR TO COMMENCEMENT OF CONSTRUCTION AT ALL MUNICIPAL CATCH BASINS ADJACENT TO THE SITE AND AT ANY MANHOLES OR CATCH BASINS THAT WILL RECEIVE DISCHARGE FROM NEW WATERING OPERATIONS AND ALL NEW CATCH BASINS AS THEY ARE INSTALLED, INSTALL SEDIMENT CAPTURE FILTER SOCK INSERTS (TERRA-GEOSYNTHETICS INC SILTSACK OR APPROVED EQUAL). INSPECT AT THE END OF EACH DAY AND AFTER EACH RAINFALL, REMOVE SEDIMENT AS RECOMMENDED BY THE MANUFACTURER. IMMEDIATELY REPAIR OR REPLACE ANY DAMAGED FILTER SOCK INSERTS. DO NOT REMOVE UNTIL CONSTRUCTION IS COMPLETE.
- 2.3 INSTALL A SILT FENCE BARRIER AROUND STOCKPILED SEDIMENT OR SOIL. PRIOR TO COMMENCEMENT OF CONSTRUCTION INSTALL A SILT FENCE BARRIER AS SHOWN ON PLANS. INSPECT ALL SILT FENCES AT THE END OF EACH DAY AND AFTER EACH RAINFALL. REMOVE SEDIMENT DEPOSITS WHEN THE LEVEL OF DEPOSITS REACHES ONE THIRD THE HEIGHT OF THE FENCE. IMMEDIATELY REPAIR OR REPLACE ANY DAMAGED SECTIONS OF FENCE. DO NOT REMOVE ANY SILT FENCES IN ANY PHASE UNTIL CONSTRUCTION IS COMPLETE.
- 2.4 PRIOR TO COMMENCEMENT OF CONSTRUCTION INSTALL STRAW BALE FLOW CHECK DAMS AS INDICATED ON DRAWINGS. INSPECT ALL STRAW BALE FLOW CHECK DAMS AT THE END OF EACH DAY AND AFTER EVERY RAINFALL. REMOVE SEDIMENT DEPOSITS WHEN THE LEVEL OF DEPOSITS REACHES ONE THIRD THE HEIGHT OF THE DAM, AND DEPOSIT SEDIMENT IN A SEPARATE DRAINAGE AREA AWAY FROM BUILDINGS TO CATCH BASINS, SWALES, DITCHES AND OTHER APPROVED DISPOSAL AREAS. STRAW BALES SHALL BE SECURELY ANCHORED BY TWO STAKES. THE FIRST STAKE IN EACH BALE SHALL BE DRIVEN TOWARDS THE PREVIOUSLY LAID BALE TO FORCE THE BALES TOGETHER. DO NOT REMOVE ANY STRAW BALES UNTIL CONSTRUCTION IS COMPLETE.
- 2.5 ANY MATERIAL DEPOSITED ON A PUBLIC ROAD SHALL BE REMOVED BY SWEEPING AND SHOVELING OR VACUUMING AND DISPOSING SEDIMENT IN A CONTROLLED AREA. DO NOT SWEEP OR HOSE MATERIAL INTO ANY STORMWATER CONVEYANCE SYSTEM.
- 2.6 CONSTRUCTION IS CONSIDERED COMPLETE WHEN THE FOLLOWING CONDITIONS HAVE BEEN MET:
- A. ALL STRUCTURES HAVE BEEN BUILT.
- B. ALL HARD SURFACES HAVE BEEN CONSTRUCTED.
- C. ALL PROPOSED GRASSSED AREAS ARE EITHER SODDED OR HAVE A FULL COVERAGE OF WELL ESTABLISHED TURF AND HAVE HAD A MINIMUM OF ONE FULL GROWING SEASON (MAY 15TH TO SEPTEMBER 15TH).
- D. THERE ARE NO AREAS OF EXPOSED EARTH.
- E. ALL STOCKPILED MATERIALS HAVE BEEN REMOVED.
- 2.7 REMOVE EROSION AND SEDIMENT CONTROL MEASURES WHEN CONSTRUCTION IS COMPLETE.

3. GRADING & DRAINAGE

- 3.1 NEW GRADES TO MATCH EXISTING AT PROPERTY LINE. NO EXCESS DRAINAGE WILL BE DIRECTED TOWARDS THE ADJACENT PROPERTIES DURING OR AFTER CONSTRUCTION. THERE WILL BE NO ALTERATION TO EXISTING GRADE AND DRAINAGE PATTERNS ON PROPERLY DRAINING AREAS.
- 3.2 ALL AREAS SHALL BE GRADED TO ENSURE ADEQUATE DRAINAGE AWAY FROM BUILDINGS TO CATCH BASINS, SWALES, DITCHES AND OTHER APPROVED DISPOSAL AREAS. GRADING SHALL BE GRADUAL BETWEEN FINISHED SPOT ELEVATIONS SHOWN ON DRAWINGS TO PREVENT PONDING (OTHER THAN PONDING REQUIRED FOR STORMWATER MANAGEMENT).
- 3.3 WHETHER RESULT OF POOR WORKMANSHIP OR DAMAGE, DEFECTIVE GRADING SHALL BE CORRECTED.
- 3.4 CONCRETE CURBS SHALL BE CONSTRUCTED TO CITY OF OTTAWA DRAWING NO. SC1.1. CONCRETE SIDEWALK SHALL BE CONSTRUCTED TO CITY OF OTTAWA DRAWING NO. SC4. CONCRETE CURBS WITH CONCRETE SIDEWALK SHALL BE CONSTRUCTED TO CITY OF OTTAWA DRAWING NO. SC1.4. MONOLITHIC CONCRETE CURB AND SIDEWALK SHALL BE CONSTRUCTED TO CITY OF OTTAWA DRAWING NO. SC2. DEPRESSED CONCRETE CURBS FOR PEDESTRIAN TRAFFIC SHALL BE 0 mm. CONCRETE CURBS SHALL BE TO CITY OF OTTAWA SPECIFICATION SECTION 5.11.1. CONCRETE SHALL BE CLASS C-2, 12 MPa. THE AIR ENTRAINMENT SHALL BE 5% TO 8% PRIOR TO PLACEMENT AND THE SLUMP SHALL BE LESS THAN 40 mm ± 20 mm FOR EXTRUDED CONCRETE CURBS AND LESS THAN 90 mm FOR PLACED CONCRETE CURBS AND SIDEWALK.
- 3.5 RIP RAP: PLACE RIP-RAP 300mm THICK AS INDICATED ON PLANS AS PER OPSS 511 AND OPSS 810.010 AND/OR 810.020. USE QUARRIED STONE 200MM TO 300MM IN DIAMETER. AREA TO BE RIP RAPPED SHALL BE EXCAVATED AND FINE GRADED TO PROVIDE ADEQUATE FOUNDATION. FILL AND THOROUGHLY COMPACT DEPRESSIONS. WHERE RIP RAP IS TO BE PLACED ON SLOPES, EXCAVATE TRENCH AT TOE OF SLOPE. PLACE GEOTEXTILE FABRIC ON PREPARED SURFACE. GEOTEXTILE FABRIC SHALL EXTEND A MINIMUM 300mm BEYOND THE EXTENT OF THE RIP RAP IN ALL DIRECTIONS. PLACE RIP RAP ON FABRIC CAREFULLY, TO AVOID PUNCTURING FABRIC. PLACE RIP RAP IN A SET AND STABLE MANNER. ROCK SHALL BE PLACED AT THE LOWER END OF THE SLOPE. THE LARGEST ROCKS OBTAINABLE SHALL BE USED AND PLACED IN THE BOTTOM COURSES AND FOR USE AS HEADERS THROUGH SUBSEQUENT COURSES. THEY SHALL BE LAID CLOSELY AND SUCH THAT THEY WILL PROVIDE A REASONABLE SEMBLANCE OF COURSES. FILL VOIDS WITH ROCK SPALLS OR COBBLES. FINISH SURFACE EVEN, FREE OF LARGE GROUNDINGS AND NEXT IN APPEARANCE.
- 3.6 WHETHER RESULT OF POOR WORKMANSHIP, USE OF DEFECTIVE PRODUCTS OR DAMAGE, DEFECTIVE PORTIONS OF CURBS, SIDEWALK AND ASPHALT SHALL BE CORRECTED OR REMOVED AND REPLACED.

4. SITE SERVICES

- 4.1 EXISTING WATER SERVICE CONNECTIONS TO BE ABANDONED SHALL BE BLANKED AT CITY WATERMAIN BY CITY FORCES. CONTRACTOR SHALL PROVIDED EXCAVATION, BEDDING AND REINSTATEMENT. EXISTING SEWER SERVICE CONNECTIONS SHALL BE ABANDONED AS PER CITY OF OTTAWA STANDARDS AND CITY DRAWING S11.4. CONNECTION TO WATERMAIN BY CITY OF OTTAWA FORCES, CONTRACTOR SHALL PROVIDE EXCAVATION, BACKFILL AND REINSTATEMENT.
- 4.2 WATER METER SHALL BE INSTALLED AS PER CITY OF OTTAWA DWG. NO. W30 W31 (40 & 50mm). WATER SERVICE LINE SHALL BE INSTALLED AS PER CITY OF OTTAWA DWG. NO. W35 (38 & 50mm).
- 4.3 ALL WATERMANS AND WATER SERVICE MATERIALS AND CONSTRUCTION METHODS TO CITY OF OTTAWA STANDARDS AND ONTARIO PROVINCIAL STANDARDS SPECIFICATIONS (OPSS & OPSPD). WATERMANS AND WATER SERVICES MATERIALS SHALL BE PVC D181 TO AWWA C-900, CSA B137.3 & CITY OF OTTAWA STANDARDS. METALLIC WARNING TAPE SHALL BE INSTALLED OVER ALL WATERMANS. PROVIDE THRUST BLOCKS AS PER CITY OF OTTAWA DWG. NO. W25.3 & W25.4 AT ALL VALVES, TEES, CAPS, BENDS, REDUCERS AND HYDRANTS OR OTHER FITTINGS WHERE THERE IS A CHANGE IN PIPE DIAMETER OR DIRECTION OF FLOW. PROVIDE 100mm MINIMUM THICKNESS OF 15mm MINIMUM CLASS C-2, THE AIR ENTRAINMENT SHALL BE 5% TO 8% PRIOR TO PLACEMENT AND THE SLUMP SHALL BE LESS THAN 40 mm ± 20 mm FOR EXTRUDED CONCRETE CURBS AND LESS THAN 90 mm FOR PLACED CONCRETE CURBS AND SIDEWALK.
- 4.4 PROVIDE A MINIMUM 2.4 m COVER OVER WATER SERVICES AND WATERMAIN. WHERE THE MINIMUM COVER IS NOT POSSIBLE INSULATE AS PER CITY OF OTTAWA DWG. NO. W21 (IN DITCHED AREAS) OR NO. W22. WHERE THERE IS LESS THAN 2.4 m CLEARANCE FROM AN OPEN STRUCTURE (EG. MANHOLES, CATCH BASINS & WINDOW WELLS) PLACE INSULATION AROUND WATERMAIN AND WATER SERVICE CONNECTIONS AS PER CITY OF OTTAWA DWG. NO. W23.
- 4.5 WATERMANS AND WATER SERVICE CONNECTIONS INSTALLED PARALLEL TO A SEWER SHALL BE LAID WITH A MINIMUM 2.5m BARREL TO BARREL HORIZONTAL SEPARATION FROM SEWERS AND SEWER MANHOLES.
- 4.6 WATERMANS AND WATER SERVICES SHALL CROSS ABOVE A SEWER AS PER CITY OF OTTAWA DRAWING NO. W25.2. PROVIDE A MINIMUM 250mm BARREL TO BARREL VERTICAL SEPARATION. IF IT IS NOT POSSIBLE FOR THE WATERMAIN OR WATER SERVICE TO CROSS ABOVE A SEWER THE WATERMAIN SHALL CROSS BELOW A SEWER AS PER CITY OF OTTAWA DRAWING NO. W25. PROVIDE A MINIMUM 500mm BARREL TO BARREL VERTICAL SEPARATION AND ENSURE THAT THE WATER PIPE IS CENTERED AT THE POINT OF CROSSING SO JOINTS ARE AS FAR AS POSSIBLE FROM THE SEWER.
- 4.7 ALL SEWER MATERIALS AND CONSTRUCTION METHODS TO CITY OF OTTAWA STANDARDS AND ONTARIO PROVINCIAL STANDARDS SPECIFICATIONS (OPSS & OPSPD). SEWER MATERIAL SHALL BE PVC OR REINFORCED CONCRETE. PVC SEWERS SHALL BE SDR-35 (SDR-28 FOR DIAMETERS 150mm OR LESS) AND SHALL CONFORM TO CSA B182.2 AND SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS. REINFORCED CONCRETE SEWERS SHALL CONFORM TO CSA 257.2 CL 50-D WITH RUBBER BASKETS TO CSA A-257.3.
- 4.8 SEWERS SHALL HAVE A MINIMUM 2.0m OF COVER OR SHALL BE INSULATED AS PER DETAIL AND CITY OF OTTAWA STANDARD DRAWING S35.
- 4.9 THE SANITARY BUILDING DRAIN SHALL BE INSTALLED WITH A NORMALLY OPEN FULL-PORT BACKWATER VALVE TO CITY OF OTTAWA STANDARDS AND TO CITY OF OTTAWA DWG. NO. S14.1 OR S14.2. THE BACKWATER VALVE SHALL BE INSTALLED SO THAT ALL PLUMBING FIXTURES ABOVE THE EXTERIOR GRADE ELEVATION DRAINS TO THE DOWNSTREAM SIDE OF THE VALVE AND ALL FIXTURES BELOW THE EXTERIOR GRADE DRAINS TO THE UPSTREAM SIDE OF THE VALVE.
- 4.10 THE STORM DRAIN SERVING THE FOUNDATION DRAINS SHALL BE INSTALLED WITH A NORMALLY CLOSED BACKWATER VALVE TO CITY OF OTTAWA STANDARDS AND TO CITY OF OTTAWA DWG. NO. S14.
- 4.11 CONNECT PROPOSED SANITARY SEWER SERVICE CONNECTION TO EXISTING MUNICIPAL SANITARY SEWER AS PER CITY OF OTTAWA DWG NO. S11.1 (FLEXIBLE MAIN SEWER).
- 4.12 MANHOLES & CATCH BASINS:
- A. PRECAST MANHOLE UNITS: TO OPSS 1351 AND OPSPD 701.010 WITH BASE SLAB OR MONOLITHIC BASE. TOP SECTIONS ECCENTRIC CONE OR FLAT LAB TOP TYPE WITH OPENING OFFSET FOR VERTICAL LADDER INSTALLATION.
- B. MANHOLE STEPS: TO OPSPD 405.01.
- C. ADJUSTING RINGS: TO ASTM C 478M.
- D. ALUMINUM SURFACES IN CONTACT WITH OR CAST INTO CONCRETE SHALL HAVE POLYETHYLENE ANCHOR INSULATING SLEEVES.
- E. PRECAST CATCH BASIN SECTIONS: TO OPSS 1351.
- F. JOINTS: SHALL BE MADE WATERTIGHT USING BUTYL BASED, FLEXIBLE WATERSTOP/JOINT SEALANT MATERIAL.
- G. SANITARY SEWERS: BENCH TO PROVIDE A SMOOTH U-SHAPED CHANNEL PER OPSPD 701.021. SLOPE INVERT TO ESTABLISH SEWER GRADE.
- H. STORM SEWERS: MANHOLES SHALL HAVE A 300mm SUMP AND CATCH BASINS AND DITCH INLETS SHALL HAVE A 600mm SUMP.
- I. FRAMES, GRATES AND COVERS TO CITY OF OTTAWA DRAWINGS OR OPSPD (AS PER CATCH BASIN & MANHOLE SCHEDULE). GRATES AND COVERS TO BEAR EVENLY ON FRAMES.
- J. GRANULAR BEDDING AND BACKFILL: OPSS GRANULAR A. RE-CYCLED GRANULAR MATERIALS ARE NOT PERMITTED.
- K. PRIOR TO INSTALLATION SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR REVIEW.
- 4.13 AS INDICATED ON PLANS: AT ALL CATCH BASINS AND CATCH BASIN MANHOLES PROVIDE MINIMUM 3m LONG, 150mm DIAMETER, PERFORATED SUB-DRAINS AT THE SUB-GRADE LEVEL. HDPE C/W FILTER FABRIC SOCK & END PLUG (BOSS 1000 OR APPROVED EQUAL).
- 4.14 ROOF DRAINS SHALL BE FLOW CONTROL TYPE EACH INSTALLED WITH A WEIR WITH A PARABOLIC SLOTS EACH SLOT SHALL RELEASE 5 USgpm/inch. OPENING AT TOP OF FLOW CONTROL WEIR SHALL BE A MINIMUM 50mm IN DIAMETER. WATTS ROOF DRAIN WITH WATTS ACCUTROL WEIR RD-100-A1 OR APPROVED EQUAL. PRIOR TO INSTALLATION SUBMIT SHOP DRAWING TO ENGINEER FOR REVIEW.
- 4.15 RAINWATER LEADERS (RWL) INSIDE BUILDING SHALL BE CONSTRUCTED TO WITHSTAND THE PRESSURE FROM A WATER COLUMN THE HEIGHT OF THE RWL. CONDUCT A PRESSURE TEST ON THE SYSTEM AS PER THE ENGINEER'S INSTRUCTIONS (SEE MECHANICAL DRAWINGS).
- 4.16 THE INLET CONTROL DEVICE (ICD) LOCATED AT THE OUTLET PIPE OF MANHOLE MH-12 SHALL BE A PLUG STYLE WITH A ROUND ORIFICE (WITH THE ORIFICE LOCATED AT THE BOTTOM OF THE PLUG) MANUFACTURED BY PEDRO PLASTICS (OR APPROVED EQUAL) AND SIZED BY THE MANUFACTURER FOR A DISCHARGE RATE AS INDICATED ON PLAN. PRIOR TO INSTALLATION SUBMIT SHOP DRAWING TO ENGINEER FOR APPROVAL.

5. CONSTRUCTION

- 5.1 PRIOR TO COMMENCING WORK:
- A. OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS FROM THE AUTHORITIES.
- B. SIZE, DEPTH AND LOCATION OF EXISTING INFRASTRUCTURE (SERVICES, UTILITIES, AND STRUCTURES) AND ARE NOT NECESSARILY SHOWN ON DRAWINGS AND THOSE INDICATED ON THE DRAWINGS ARE DERIVED FROM AVAILABLE INFORMATION AND ARE FOR GUIDANCE ONLY AND MUST BE CONFIRMED ON SITE BEFORE COMMENCING ANY WORK. COMPLETENESS AND ACCURACY ARE NOT GUARANTEED. NOTIFY ALL APPLICABLE OWNERS, UTILITY COMPANIES AND AUTHORITIES HAVING JURISDICTION OF PROPOSED WORK AND LOCATE AND CLEARLY IDENTIFY ALL EXISTING INFRASTRUCTURE ON THE SITE AND ADJACENT TO THE SITE. UNDERGROUND LOCATES (INCLUDING BUT NOT LIMITED TO ONTARIO ONE CALL: 1-800-400-2255) SHALL BE CONDUCTED PRIOR TO THE COMMENCEMENT OF ANY EXCAVATION. CONFIRM LOCATIONS OF BURIED INFRASTRUCTURE BY CAREFULLY EXCAVATING TEST PITS AND REPORT ANY DIFFERENCES TO THE ENGINEER. ANY ISSUES ARISING FROM FAILURE OF CONTRACTOR TO DETERMINE THE SIZE, DEPTH AND LOCATION ALL EXISTING INFRASTRUCTURE WILL BE AT THE CONTRACTOR'S EXPENSE.
- C. EXISTING GRADE ELEVATIONS SHOWN ON DRAWINGS ARE DERIVED FROM AVAILABLE INFORMATION AND ARE FOR GUIDANCE ONLY AND MUST BE CONFIRMED ON SITE BEFORE COMMENCING CONSTRUCTION. COMPLETENESS AND ACCURACY ARE NOT GUARANTEED. REPORT ANY DIFFERENCES TO ENGINEER.
- D. COORDINATE AND SCHEDULE WORK WITH THE OWNER, AUTHORITIES AND OTHER TRADES.
- E. SCHEDULE WORK TO PROVIDE THE MINIMUM DISRUPTION TO SERVICES.
- F. INSTALL CONSTRUCTION FENCING AROUND THE AREA OF WORK. DO NOT REMOVE FENCING UNTIL WORK IS COMPLETE.
- 5.2 MAINTAIN AND PROTECT FROM DAMAGE, SERVICES, UTILITIES AND STRUCTURES ENCOUNTERED.
- 5.3 PROTECT EXISTING BUILDINGS, TREES AND OTHER PLANTS, LAWNS, FENCING, SERVICE POLES, WIRES, PAVEMENT, SURVEY BENCH MARKS AND MONUMENTS AND OTHER SURFACE FEATURES FROM DAMAGE WHILE WORK IS IN PROGRESS. DO NOT DISTURB SOIL WITHIN BRANCH SPREAD OF TREES OR SHRUBS THAT ARE TO REMAIN.
- 5.4 PROVIDE TRAFFIC CONTROL AND SAFETY MEASURES AS REQUIRED BY THE AUTO-ORIENTED, INCLUDING THE SUPPLY, INSTALLATION, REMOVAL AND REPLACEMENT OF ALL NECESSARY SIGNAGE AND BARRIERS. IF APPLICABLE, PROVIDE TRAFFIC MANAGEMENT PLAN AS PER CITY OF OTTAWA REQUIREMENTS.
- 5.5 FENCE OFF ALL OPEN EXCAVATIONS AT THE END OF EACH WORK DAY. FENCES SHALL BE INSTALLED AND MAINTAINED A GOOD AND EFFECTIVE CONDITION.
- 5.6 REMOVE OBSTRUCTIONS, ICE AND SNOW, FROM SURFACES TO BE EXCAVATED.
- 5.7 CUT PAVEMENT AND / OR SIDEWALK NEATLY ALONG LIMITS OF PROPOSED EXCAVATION IN ORDER THAT SURFACE MAY BREAK EVENLY AND CLEANLY.

- 5.8 COORDINATE AND PAY FOR GEOTECHNICAL INSPECTIONS AND COMPACTION TESTS OF; SERVICING TRENCHES (SUB-GRADE, PIPE BEDDING AND EACH LAYER OF SURROUND MATERIAL, AND BACKFILL); AND PAVEMENT STRUCTURES (SUB-GRADE, SUB-BASE, BASE AND ASPHALT); TO THE SATISFACTION OF THE GEOTECHNICAL CONSULTANT AND NOMINATED ENGINEER. SUBMIT GEOTECHNICAL INSPECTIONS AND COMPACTION REPORTS TO ENGINEER FOR REVIEW. A MINIMUM OF ONE SET OF INSPECTION AND COMPACTION TESTS SHALL BE COMPLETED ON EACH PIPE SEGMENT GREATER THAN 15 m IN LENGTH. A MINIMUM ONE SET OF INSPECTION AND COMPACTION TESTS SHALL BE COMPLETED FOR EVERY 500 m² OF PAVEMENT AREA.
- 5.9 CUT AND FILL AS NECESSARY TO ACHIEVE THE PROPOSED GRADE ELEVATIONS. DISPOSE OF SURPLUS AND UNSUITABLE EXCAVATED MATERIAL OFF SITE. ANY REQUIRED FILL SHALL BE CLEAN WELL GRADED SAND TO OPSS 1004 UNLESS OTHERWISE DIRECTED BY GEOTECHNICAL ENGINEER. FILL SHALL BE COMPACTED TO NOT LESS THAN 95% OF CORRECTED MAXIMUM DRY DENSITY. FILL MATERIAL AND THE PLACEMENT AND COMPACTION OF THE FILL MATERIAL AS PER THE GEOTECHNICAL REPORT AND TO THE SATISFACTION OF THE GEOTECHNICAL CONSULTANT. PLACE MATERIAL IN UNIFORM LAYERS NOT EXCEEDING 300mm COMPACTED THICKNESS.
- 5.10 PROTECT WORK AREA AGAINST FLOODING AND DAMAGE DUE TO SURFACE RUN-OFF. DEWATER AS REQUIRED TO KEEP WORK AREA FREE OF WATER. DISCHARGE FROM DEWATERING OPERATIONS SHALL BE DIRECTED TO A SEDIMENT CONTROL MEASURE AND/OR A VEGETATED DISCHARGE AREA. ENSURE THAT THE DISCHARGED WATER DOES NOT CAUSE EROSION OR OTHER DAMAGE TO ADJACENT LANDS.
- 5.11 EXCAVATION, TRENCHING, & BACKFILL:
- A. SHORE AND BRACE EXCAVATIONS, PROTECT SLOPES AND BANKS AND PERFORM ALL WORK IN ACCORDANCE WITH ONTARIO REGULATION 213/91 UNDER THE ONTARIO OCCUPATIONAL HEALTH AND SAFETY ACT AND OTHER AUTHORITIES HAVING JURISDICTION.
- B. KEEP EXCAVATIONS FREE OF WATER WHILE WORK IS IN PROGRESS. PROTECT OPEN EXCAVATIONS AGAINST FLOODING AND DAMAGE DUE TO SURFACE RUN-OFF.
- C. EXCAVATION SHALL NOT INTERFERE WITH BEARING CAPACITY OF ADJACENT FOUNDATIONS.
- D. DO NOT OBSTRUCT FLOW OF SURFACE DRAINAGE OR NATURAL WATERCOURSES.
- E. EXCAVATE TO LINES, GRADES, ELEVATIONS AND DIMENSIONS AS INDICATED.
- F. EARTH BOTTOMS OF EXCAVATIONS TO BE UNDISTURBED SOIL, LEVEL, FREE FROM LOOSE, SOFT OR ORGANIC MATTER.
- G. ALL STRUCTURES WITHIN PAVED AREAS SHALL HAVE 4:1 FROST TAPERS FROM FROST LINE TO SUB-GRADE.
- H. CORRECT OVER-EXCAVATION WITH GRANULAR A COMPACTED TO NOT LESS THAN 95% OF CORRECTED MAXIMUM DRY DENSITY.
- I. SUB-GRADE AND AREAS TO BE BACKFILLED TO BE FREE FROM DEBRIS, SNOW, ICE, WATER AND FROZEN GROUND.
- J. DO NOT USE BACKFILL MATERIAL WHICH IS FROZEN OR CONTAINS ICE, SNOW OR DEBRIS.
- K. PIPE BEDDING AND SURROUND MATERIAL SHALL BE OPSS GRANULAR A. RE-CYCLED GRANULAR MATERIALS ARE NOT PERMITTED.
- L. DO NOT USE BEDDING, SURROUND OR BACKFILL MATERIAL WHICH IS FROZEN OR CONTAINS ICE, SNOW OR DEBRIS.
- M. PIPE BEDDING SHALL BE 150mm THICK. SHAPE BED TRUE TO GRADE AND TO PROVIDE CONTINUOUS, UNIFORM BEARING SURFACE FOR PIPE.
- N. PLACE SURROUND MATERIAL AROUND PIPES TO FULL WIDTH OF TRENCH AND TO 300mm ABOVE PIPES.
- O. PLACE BEDDING AND SURROUND MATERIAL IN UNIFORM LAYERS NOT EXCEEDING 150mm COMPACTED THICKNESS. PLACE FILL AND BACKFILL MATERIAL IN UNIFORM LAYERS NOT EXCEEDING 300mm COMPACTED THICKNESS.
- P. COMPACT EACH LAYER TO 95% OF CORRECTED DRY DENSITY BEFORE PLACING SUCCEEDING LAYER.
- Q. DO NOT BACKFILL AROUND OR OVER CAST-IN-PLACE CONCRETE WITHIN 24 HOURS AFTER PLACING OF CONCRETE.
- R. BACKFILL MATERIALS WITHIN 1.8m OF PROPOSED GRADE SHALL MATCH THE MATERIALS EXPOSED ON THE TRENCH WALLS. BACKFILL BELOW 1.8m OF THE PROPOSED GRADE CAN CONSIST OF EITHER ACCEPTABLE NATIVE MATERIAL, ROCK OR IMPORTED GRANULAR MATERIAL CONFORMING TO OPSS GRANULAR B TYPE I OR II. ANY ORGANIC SOILS OR TOPSOIL, IF ENCOUNTERED, SHALL BE REMOVED FROM THE EXCAVATION. IF ROCK IS USED AS BACKFILL IT SHALL BE WELL SHATTERED AND GRADED AND 200mm OR SMALLER IN DIAMETER, TO PREVENT INGRESS OF FINE MATERIAL INTO VOIDS IN THE ROCK FILL. THE UPPER SURFACE OF THE ROCK FILL SHALL BE COVERED WITH 150mm LAYER OF COMPACTED, WELL GRADED CRUSHED STONE PLACED ON GEOTEXTILE FABRIC.

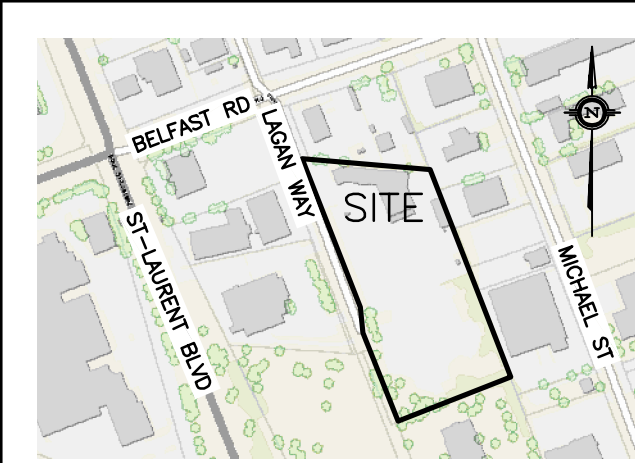
5.12 PIPES:

- A. HANDLE PIPE USING METHODS APPROVED BY MANUFACTURER.
- B. LAY, CUT AND JOIN PIPES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- C. USE ONLY FITTINGS AS RECOMMENDED BY PIPE MANUFACTURER.
- D. LAY PIPES ON PREPARED BED, TRUE TO LINE AND GRADE AND ENSURE BARREL OF EACH PIPE IS IN CONTACT WITH SHAPED BED THROUGHOUT ITS FULL LENGTH, FREE OF SACS OR HIGH POINTS.
- E. DO NOT EXCEED MAXIMUM JOINT DEFLECTION RECOMMENDED BY PIPE MANUFACTURER.
- F. WHENEVER WORK IS SUSPENDED, INSTALL REMOVABLE WATERIGHT BULKHEAD AT OPEN END OF LAST PIPE LAID TO PREVENT ENTRY OF FOREIGN MATERIALS.
- G. WHEN STOPPAGE OF WORK OCCURS, BLOCK PIPES TO PREVENT CREEP DURING DOWN TIME. MAKE WATERTIGHT CONNECTIONS TO MANHOLES.
- H. JOINTS SHALL BE STRUCTURALLY SOUND AND WATERTIGHT.
- I. REPAIR OR REPLACE PIPE, PIPE JOINT OR BEDDING FOUND DEFECTIVE.
- 5.13 SEWERS AND SEWER SERVICE CONNECTIONS:
- A. CONSTRUCT TRENCHES AS PER CITY DWG S6 & S7.
- B. INSTALL PIPE JOINTS NOT MORE THAN 1.2 m FROM SIDE OF RIGID STRUCTURES.
- C. MAINTAIN EXISTING SEWAGE FLOWS DURING CONSTRUCTION.
- D. PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS, SPECIFICALLY, THE LEAKAGE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPSS 410.
- E. REPAIR AND RETEST SEWER LINE AS REQUIRED. REPAIR VISIBLE LEAKS REGARDLESS OF TEST RESULTS.
- F. CONDUCT TWO CCTV INSPECTIONS OF SEWERS. FIRST INSPECTION AFTER COMPLETION OF CONSTRUCTION. SECOND INSPECTION IMMEDIATELY PRIOR TO END OF WARRANTY PERIOD. A PAN AND TILT CAMERA SHALL BE USED. REPAIR SEWER LINE AS REQUIRED. SUBMIT REPORTS AND DVDS TO ENGINEER.
- G. CONDUCT TWO CCTV INSPECTIONS OF THE MUNICIPAL STORM SEWER FROM THE FIRST MANHOLE UPSTREAM OF THE STORM SEWER CONNECTION TO THE FIRST MANHOLE DOWNSTREAM; AND TWO CCTV INSPECTIONS OF THE MUNICIPAL SANITARY SEWER FROM THE FIRST MANHOLE UPSTREAM OF THE SANITARY SEWER CONNECTION TO THE FIRST MANHOLE DOWNSTREAM. THE FIRST CCTV INSPECTIONS SHALL BE COMPLETED PRIOR TO COMMENCEMENT OF CONSTRUCTION AND THE SECOND CCTV INSPECTION SHALL BE COMPLETED AFTER THE COMPLETION OF CONSTRUCTION. A PAN AND TILT CAMERA SHALL BE USED. SUBMIT REPORTS AND VIDEOS TO THE ENGINEER.
- 5.14 WATERMANS AND WATER SERVICE CONNECTIONS:
- A. CONSTRUCT TRENCHES AS PER CITY DWG W17.
- 5.15 WATERMAIN AND WATER SERVICE:
- A. INSTALL AND TEST TRACER WIRE ON THE WATER SERVICE CONNECTION AS PER 4.3.12 OF THE CITY OF OTTAWA WATER DISTRIBUTION DESIGN GUIDELINES AND DRAWING W36.
- B. PRESSURE TESTING AS PER AWWA C-605-5 AND CITY OF OTTAWA DESIGN GUIDELINES – WATER DISTRIBUTION SECTION 4.6.13.
- C. CHLORINATION AS PER AWWA C-651-05 AND CITY OF OTTAWA DESIGN GUIDELINES – WATER DISTRIBUTION SECTION 4.6.13 & CITY DWG. W46.
- 5.16 MANHOLES & CATCH BASINS:
- A. JOINTS: SHALL BE MADE WATERTIGHT.
- B. SET PRECAST CONCRETE BASE ON 150mm MINIMUM OF GRANULAR BEDDING COMPACTED TO 100% CORRECTED MAXIMUM DRY DENSITY.
- C. MAKE EACH JOINT WATERTIGHT WITH RUBBER RING GASKETS.
- D. PLACE GRANULAR BACKFILL MATERIALS IN A UNIFORM LAYERS TO COMPACTED THICKNESS OF 150mm, COMPACT TO 95% CORRECTED MAXIMUM DRY DENSITY.
- E. PLACE FRAME AND COVER ON TOP SECTION TO ELEVATION AS INDICATED. IF ADJUSTMENT REQUIRED USE CONCRETE RINGS TO A MAXIMUM OF 300mm.
- F. CLEAN UNITS OF DEBRIS, FOREIGN AND SURPLUS MATERIALS. REMOVE FINIS AND SHARP PROJECTIONS. PREVENT DEBRIS FROM ENTERING SYSTEM.
- G. PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS, SPECIFICALLY, THE LEAKAGE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPSS 407.
- 5.17 MAINTAIN RECORD DRAWINGS AND ACCURATELY RECORD DEVIATIONS FROM THE ORIGINAL CONTRACT DOCUMENTS CAUSED BY SITE CONDITIONS AND CHANGES MADE BY CHANGE ORDER OR ADDITIONAL INSTRUCTIONS. UPDATE DAILY AND MAKE AVAILABLE ON-SITE FOR REVIEW THROUGHOUT THE CONSTRUCTION PERIOD. RECORD DRAWINGS SHALL INCLUDE BUT NOT NECESSARILY LIMITED TO CHANGES OF DIMENSION AND DETAIL; CHANGES TO GRADE ELEVATIONS; AND HORIZONTAL AND VERTICAL LOCATIONS OF UNDERGROUND SERVICES, UTILITIES AND APPURTENANCES REFERENCED TO A PERMANENT SURFACE STRUCTURE. SUBMIT DRAWINGS TO ENGINEER AT THE END OF CONSTRUCTION. SUBMIT RECORD DRAWINGS OF AS-BUILT ORIGIN ELEVATIONS, PREPARED BY AN IAS SURVEYOR, TO THE ENGINEER AT THE END OF CONSTRUCTION.
- 5.18 REINSTATE ALL AREAS DISTURBED BY CONSTRUCTION. REINSTATE PAVEMENTS, CURBS AND SIDEWALKS, TO THICKNESS, STRUCTURE AND ELEVATION WHICH EXISTED BEFORE CONSTRUCTION. REINSTATE LANDSCAPED AREAS TO THE CONDITION AND ELEVATION WHICH EXISTED BEFORE CONSTRUCTION.
- 5.19 CLEAN AND REINSTATE AREAS AFFECTED BY THE WORK.

6. PAVEMENT

- 6.1 PAVEMENT STRUCTURE (AS RECOMMENDED BY THE GEOTECHNICAL INVESTIGATION REPORT PREPARED BY PATERSON GROUP):
- LIGHT DUTY PAVEMENT:
- 50mm HL-3 OR SUPERPAVE 12.5 ASPHALTIC CONCRETE
- 150mm OPSS GRANULAR A BASE
- 300mm OPSS GRANULAR B TYPE II SUB-BASE
- HEAVY DUTY PAVEMENT:
- 40mm HL-3 OR SUPERPAVE 12.5 ASPHALTIC CONCRETE
- 50mm HL-8 OR SUPERPAVE 19.0 ASPHALTIC CONCRETE
- 150mm OPSS GRANULAR A BASE
- 450mm OPSS GRANULAR B TYPE II SUB-BASE
- RE-CYCLED GRANULAR MATERIALS ARE NOT PERMITTED.
- ASPHALTIC CONCRETE SHALL BE PERFORMANCE GRADE PG58-34.
- HOT MIX ASPHALT MATERIALS SHALL BE ACCORDING TO OPSS 1150 OR 1151.
- CONSTRUCTION OF HOT MIX ASPHALT PAVEMENT SHALL BE ACCORDING TO OPSS 310.
- 6.2 PAVEMENT SUB-GRADE PREPARATION AND CONSTRUCTION OF THE PAVEMENT STRUCTURE SHALL CONFORM TO THE GEOTECHNICAL INVESTIGATION TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER.
- 6.3 ALL EXISTING ASPHALT TO BE REMOVED SHALL BE HAULED TO A FACILITY APPROVED FOR ACCEPTING SUCH MATERIALS. REMOVE ALL MATERIALS TO THE SUB-GRADE LEVEL. REMOVE ORGANIC OR UNSUITABLE MATERIAL FROM SUB-GRADE WHERE ENCOUNTERED TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER. SUB-GRADE TO BE FREE FROM DEBRIS, SNOW, ICE, WATER AND FROZEN GROUND. COMPACT SUB-GRADE TO 95%.
- 6.4 CONSTRUCT GRANULAR BASE AND SUB-BASE TO DEPTH AND GRADE IN AREAS INDICATED. CONSTRUCT A 5H:1V FROST TAPER IN SUB-GRADE SURFACE AS A TRANSITION BETWEEN DIFFERING PAVEMENT STRUCTURES AND BETWEEN PAVEMENT AND CURBS AND SIDEWALKS.
- 6.5 ENSURE NO FROZEN MATERIAL IS PLACED. PLACE MATERIAL ONLY ON CLEAN UNFROZEN SURFACE, FREE FROM SNOW OR ICE.
- 6.6 PLACE MATERIAL TO FULL WIDTH IN UNIFORM LAYERS NOT EXCEEDING 300mm COMPACTED THICKNESS. SHAPE EACH LAYER TO SMOOTH CONTOUR AND COMPACT TO SPECIFIED DENSITY BEFORE SUCCEEDING LAYER IS PLACED.
- 6.7 COMPACT SUB-BASE MATERIAL TO DENSITY OF NOT LESS THAN 98% CORRECTED MAXIMUM DRY DENSITY. FILL OVER-EXCAVATED SUB-GRADE WITH SUB-BASE MATERIAL, COMPACT TO 98%. COMPACT BASE AND SHOULDER MATERIAL TO DENSITY NOT LESS THAN 100% CORRECTED MAXIMUM DRY DENSITY.
- 6.8 IN AREAS NOT ACCESSIBLE TO ROLLING EQUIPMENT, COMPACT TO SPECIFIED DENSITY WITH MECHANICAL TAMPERS.
- 6.9 REPLACE PAVEMENT DISTURBED BY CONSTRUCTION AND REPLACE WITH PAVEMENT STRUCTURE ABOVE.
- 6.10 WHERE NEW ASPHALT COMES IN CONTACT WITH EXISTING PAVEMENT, SAWCUT EXISTING ASPHALT LAYER TO CREATE A CLEAN STRAIGHT EDGE. TACK COAT SHALL BE APPLIED TO ASPHALT SURFACES AT WHICH JOINTS ARE TO BE MADE INCLUDING EXISTING PAVEMENT SURFACES THAT HAVE BEEN CUT, GROUND OR MILLED. TACK COAT THE SURFACE OF ALL BINDER COURSES AND BUTTING CONCRETE SURFACES. SURFACES TO BE TACK COATED SHALL BE FREE OF STANDING WATER AND CONTAMINATION, SUCH AS MUD, LOOSE AGGREGATE OR DEBRIS AND SHALL BE DRY AND CLEAN WHEN THE TACK COAT IS APPLIED. TACK COAT SHALL BE PLACED SUFFICIENTLY AHEAD OF THE PAVING OPERATION TO ALLOW FOR CURING. PAVING AND CONSTRUCTION EQUIPMENT SHALL NOT BE PERMITTED onto THE TACK COAT UNTIL IT HAS SET. TACK COAT MATERIAL SHALL CONSIST OF SS-1 EMULSIFIED ASPHALT DILUTED WITH AN EQUAL VOLUME OF WATER. THE UNDILUTED MATERIAL SHALL BE ACCORDING TO OPSS 1103.
- 6.11 SHAPE LAYER TO SMOOTH CONTOUR AND COMPACT TO NOT LESS THAN 100% CORRECTED MAXIMUM DRY DENSITY BEFORE BEGINNING PAVING OPERATIONS.
- 6.12 APPLY ASPHALTIC CONCRETE ONLY WHEN BASE OR PREVIOUS COURSE IS DRY AND AIR TEMPERATURE IS ABOVE 5 DEG C.
- 6.13 ROLL UNTIL ROLLER MARKS ARE ELIMINATED AND COMPACTED TO NOT LESS THAN 95% OF DENSITY. COMPACT WITH HOT TAMPERS IN AREAS INACCESSIBLE TO A ROLLER. BEVEL EDGES ADJACENT TO GRANULAR SURFACES.
- 6.14 FINISH SURFACE SMOOTH, TRUE TO GRADE.
- 6.15 KEEP VEHICULAR TRAFFIC AND OTHER LOADS OFF NEWLY PAVED AREAS UNTIL 24 HOURS AFTER PAVING.
- 6.16 DIVERT UNUSED AND WASTE ASPHALT TO A FACILITY APPROVED FOR ACCEPTING SUCH MATERIALS.
- 6.17 APPLY TRAFFIC PAINT AS IDENTIFIED ON PLAN. TRAFFIC PAINT: NON-DARKENING, NON-HOMOGEOUS, UNIFORM AND SMOOTH, FREE FROM SKIN, DIRT AND OTHER FOREIGN PARTICLES. APPLY TO DRY PAVEMENT SURFACE FREE FROM FROST, ICE, DUST, OIL, GREASE AND OTHER FOREIGN MATERIALS. PROTECT PAVEMENT MARKINGS UNTIL DRY.

KEY PLAN



5	AUG 6-26	RE-ISSUED FOR APPROVAL
4	MAY 15-26	ISSUED FOR TENDER
3	APR 7-26	RE-ISSUED FOR APPROVAL
2	DEC 16-25	ISSUED FOR APPROVAL
1	NOV 13-25	ISSUED FOR COORDINATION
No.	DATE	REVISION

D. B. GRAY ENGINEERING INC.

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Drawing Title

NOTES

Engineer's Seal

Drawn D.B.G.
H. Scale
V. Scale
Date NOV 13-25
Job No. 24022

Drawing No.
C-12
of 13

