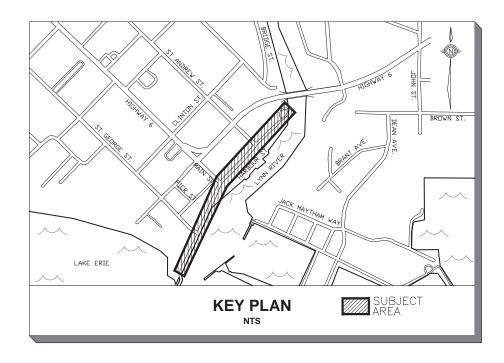
NORFOLK COUNTY

EIS-ENG-25-36

HARBOUR STREET RECONSTRUCTION PROJECT

DRAWING LIST						
DRAWING	SCALE	DESCRIPTION				
N22007 N	N.T.S.	NOTES SHEET				
N22007 PP1	H1:250 V1:50	PLAN AND PROFILE - HARBOUR ST STA 0+000 TO 0+150				
N22007 PP2	H1:250 V1:50	PLAN AND PROFILE - HARBOUR ST STA 0+140 TO 0+300				
N22007 PP3	H1:250 V1:50	PLAN AND PROFILE - HARBOUR ST STA 0+270 TO 0+415				
N22007 PP4	H1:250 V1:50	PLAN AND PROFILE - HARBOUR ST STA 0+415 TO 0+505				
N22007 REM1	1:250	REMOVALS PLAN 1				
N22007 REM2	1:250	REMOVALS PLAN 2				
N22007 GP1	1:250	GRADING PLAN 1				
N22007 GP2	1:250	GRADING PLAN 2				
N22007 GP3	1:250	GRADING PLAN 3				
N22007 GP4	1:250	GRADING PLAN 4				
N22007 D	N.T.S.	DETAIL SHEET				



2255 BARTON ST. E, UNIT B
HAMILTON, ON, L8H7T4
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MUNICIPALITY:



GENERAL NOTES

- 1. ALL WORK COMPLETED WITHIN THE KINGS HIGHWAY LIMIT, MUST BE COMPLETED TO MTO POLICY, STANDARDS AND ALL APPLICABLE MTOD, OPSD AND OPSS STANDARDS AND SPECIFICATIONS.
- 2. NORFOLK COUNTY STANDARDS AND SPECIFICATIONS AND O.P.S.D.'S ARE TO CONSTITUTE PART OF THE ENGINEERING DRAWINGS AND CONTRACT DOCUMENTS.
- 3. INFORMATION REGARDING ANY EXISTING SERVICES AND/OR UTILITIES SHOWN IN THIS SET OF PLANS IS FURNISHED AS THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL ENSURE THAT ALL EXISTING UTILITIES ARE LOCATED IN THE FIELD BY THE APPROPRIATE UTILITY COMPANIES PRIOR TO PROCEEDING WITH CONSTRUCTION, AT HIS OWN EXPENSE.
- 4. ALL DIMENSIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ANY CONSTRUCTION AND HE SHALL REPORT ANY DISCREPANCIES IMMEDIATELY TO THE ENGINEER.
- 5. THE NOTES ON THIS SHEET APPLY TO ALL WORKS UNDER THIS CONTRACT UNLESS OTHERWISE NOTED ON PLAN AND PROFILE AND/OR DETAIL
- TENDERERS SHALL SATISFY THEMSELVES AS TO NATURE OF THE SOILS AND BID ACCORDINGLY. GEOTECHNICAL REPORTS DATED MAY 2015, ARE AVAILABLE FROM THE ENGINEER.
- 7. THE CONTRACTOR SHALL OBTAIN THE VARIOUS PERMITS REQUIRED TO COMPLETE THIS PROJECT-INCLUDING, BUT NOT LIMITED TO THE FOLLOWING:
 - LE OBJAIN THE VARIOUS PERMITS
 -BLASTING PERMITS
 -ROAD CUT PERMITS
 -APPROACH APPROVAL PERMITS
 -SEWER AND WATER PERMITS
 -RELOCATION OF SERVICES
- 8. ALL CONCRETE FOR SUBSURFACE STRUCTURES TO BE MANUFACTURED WITH TYPE 50 SULPHATE RESISTANT CEMENT.
- 9. UTILITY LOCATIONS ARE TO BE LOCATED IN ACCORDANCE WITH NORFOLK COUNTY STANDARDS. (SEE DETAIL ON THIS SHEET).

ROADWORKS

- ROADS SHALL BE CONSTRUCTED TO THE CROSS-SECTIONS AND PROFILES AS SHOWN ON THE DRAWINGS, AND IN ACCORDANCE WITH NORFOLK COUNTY STANDARDS AND SPECIFICATIONS.
- GRANULAR 'A' AND GRANULAR 'B' MATERIALS TO BE COMPACTED TO 100% AND 98% OF STANDARD PROCTOR DENSITY (MAXIMUM DRY) RESPECTIVELY. ASPHALT MIX DESIGN SHALL CONFORM TO M.T.O. REQUIREMENTS.
- 3. ASPHALT SHALL BE UNIFORMLY COMPACTED TO 97% OF MARSHALL DENSITY
- 4. PAVEMENT DESIGN:

120mm BASE ASPHALT HL-8 500mm GRANULAR 'A' BASE COURSE

- 5. CONCRETE CURB IN ACCORDANCE WITH O.P.S.D. 600.040. UNLESS OTHERWISE SPECIFIED ON THE DRAWINGS.
- 6. 1.5m CONCRETE SIDEWALK IN ACCORDANCE WITH NORFOLK COUNTY STANDARDS. UNLESS OTHERWISE NOTED.
- 7. SUBDRAINS (100mmø CORRUGATED SLOTTED PLASTIC PIPE WITH FACTORY INSTALLED FILTER FABRIC) TO BE PROVIDED ON BOTH SIDES OF ROAD IN ACCORDANCE WITH NORFOLK COUNTY STANDARDS.
- 8. TWO WAY TRAFFIC TO BE MAINTAINED AT ALL TIMES. CONTRACTOR TO SUPPLY A STAGING PLAN FOR APPROVAL BY NORFOLK COUNTY. NO WORK SHALL BE DONE BEFORE THE APPROVAL OF THE STAGING PLAN.
- 9. FOR STAMPED ASPHALT, CONTRACTOR TO USE FLEXIBLE TEMPLATES TO STAMP THE DESIRED PATTERN INTO THE ASPHALT USING A VIBRATORY PLATE COMPACTOR. STAMPING SHALL OCCUR ON A FRESHLY PLACED ASPHALT SURFACE WHILE THE ASPHALT IS STILL PLIABLE. WHEN STAMPING EXISTING ASHPALT SURFACES, CONTRACTOR TO HEAT THE ASPHALT USING INFRARED HEATING APPARATUS TO A DEPTH OF AT LEAST 2cm. CONTRACTOR TO ENSURE SURFACE TEMPERATURE OF ASPHALT IS NO MORE THAN 163°C.

WATERMAINS

- 1. CONSTRUCTION OF WATERMAINS AND SERVICES SHALL BE IN ACCORDANCE WITH O.P.S.D. AND NORFOLK COUNTY STANDARD AND SPECIFICATIONS
- 2. WATERMAIN TO BE 200mmø PVC PIPE, CL.150, AWWA C-900, DR 18, WITH RUBBER GASKET JOINTS AWWA C-111, CERTIFIED TO CSA B137.3.
- 3. ALL FITTINGS TO HAVE MECHANICAL RESTRAINTS THAT MEET UNI-B-94 SPECIFICATIONS
- 4. MINIMUM DEPTH OF COVER OVER WATERMAINS SHALL BE 1.70m FROM THE ROAD CENTRELINE ELEVATION.
- 5. BEDDING FOR WATERMAIN IN ACCORDANCE WITH O.P.S.D. 802.010 OR 802.013.
- 6. A MINIMUM HORIZONTAL SEPARATION OF 2.5m AND A MIN. VERTICAL CLEARANCE WHERE THE WATERLINES PASS OVER SEWERS IS 0.15m AND 0.50m IF THE SEWER IS OVER THE WATERMAIN.
- 7. HYDRANTS SHALL BE INSTALLED IN ACCORDANCE WITH O.P.S.D. 1105.010 AND H.C.D.C SECTION "J". BREAK OFF FLANGE IS TO BE 0.15m ABOVE FINISHED C/L ELEV. OF ROAD. HYDRANTS TO BE SEALED/PLUGGED UNITS AS PER H.C.D.C.. REFER TO H.C.D.C SECTION "J" FOR APPROVED MANUFACTURERS LIST.
- 8. SERVICES FOR ALL DWELLINGS TO BE 20mmø TYPE 'K' SOFT COPPER UNLESS OTHERWISE SPECIFIED. SEE LIST ON PLAN AND PROFILE DRAWINGS.
- 9. SACRIFICIAL ZINC ANODES ARE TO BE INSTALLED ON ALL METALLIC FITTINGS UNLESS POLYETHYLENE ENCASED FITTINGS ARE UTILIZED.
- 10. TYPICAL MIN. LONGITUDINAL BENDING RADIUS = 58.0m FOR 200mmø PVC WATERMAIN UNLESS SPECIFIED OTHERWISE BY MANUFACTURER
- 11. MAX. ALLOWABLE DEFLECTION FOR 200mm@ PVC WATERMAIN SHALL NOT EXCEEDED 5% OF THE INTERNAL DIA. AND EACH BARREL SHALL BE DEFLECTED AN EQUAL AMOUNT. MAX. ALLOWABLE PIPE JOINT DEFLECTION SHALL BE 66% OF THE MANUFACTURE'S SPECIFICATION.
- 12. PVC WATERMAIN MUST BE INSTALLED WITH 10 GAUGE SOLID COPPER PLASTIC COATED TRACER WIRE.
- 13. ALL WATER SERVICES ARE TO BE STAKED AT THE PROPERTY LINE AND STAKES ARE TO BE PAINTED BLUE.
- 14. CONNECTION OF THE WATER SERVICES, TO THE MAIN, IS TO BE BY MANUFACTURED TEES,
- 15. JOINT RESTRAINT DEVICES SHALL BE USED IN LIEU OF CONCRETE THRUST BLOCKS AT PLUGS, BENDS AND FITTINGS. JOINT RESTRAINT DEVICES SHALL BE FOR PVC PIPE AS DISTRIBUTED BY UNI-FLANGE PIPE PRODUCTS OR ROMAC WATERWORKS. RECOMMENDED RESTRAINING LENGTHS FOR "UNI-FLANGE" PRODUCTS ARE AS ILLUSTRATED IN TABLE 1, ON THIS SHEET.
- 16. ALL VALVES TO OPEN LEFT (COUNTER CLOCKWISE) AND SHALL HAVE 50mm SQUARE STANDARD AWWA OPERATING NUT.
- 17. ALL SALVAGED HYDRANTS FROM THIS CONTRACT TO BE DELIVERED TO THE WATER DEPOT ON HIGHWAY 55.
- 18. ANY EXISTING COPPER WATER SERVICE, THAT IS IN A GOOD STATE OF REPAIR AND IS DEEMED TO BE REUSABLE BY THE INSPECTOR CAN REMAIN. NO SPLICING OF WATER SERVICES WILL BE ALLOWED BETWEEN THE MAIN AND PROPERTY LINE.
- 19. ALL EXISTING WATER SERVICES THAT ARE NOT REMOVED TO BE CRIMPED AT BOTH ENDS TO THE SATISFACTION OF NORFOLK COUNTY.

STORM SEWERS

- STORM SEWERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH NORFOLK COUNTY STANDARDS AND SPECIFICATIONS. ALL PIPE USED IN STORM SEWER MAINS SHALL BE PVC RIBBED PIPE OR CONCRETE MANUFACTURED IN ACCORDANCE WITH CSA B182.4, ASTM F794, OR CSA A257.2, M-1982, WITH RUBBER GASKET JOINTS.
- 2. ALL PVC PIPE SHALL BE FROM A PLANT APPROVED BY THE MINISTRY OF ENVIRONMENT.
- 3. ALL MANHOLES IN ACCORDANCE WITH O.P.S.D. 701.010 (1200mmø) & 701.011 (1500mmø) WITH FRAME AND COVER OPSD 401.010, TYPE B, OPEN COVER. THE WORD "STORM" IS TO BE CAST INTO LID.
- 4. SINGLE CB'S IN ACCORDANCE WITH O.P.S.D. 705.010 WITH GRATES AS PER O.P.S.D. 400.11.
- 5. DOUBLE CATCH BASINS AS PER OPSD 705.020 WITH FRAME AND GRATE AS PER OPSD 400.11 UNLESS SPECIFIED OTHERWISE.
- 6. PIPE BEDDING FOR CIRCULAR PLASTIC PIPE SHALL BE IN ACCORDANCE WITH O.P.S.D. 802.010 OR 802.013. CONCRETE SEWER PIPE BEDDING SHALL BE IN
- 7. TRENCH BACKFILL FROM TOP OF SEWER BEDDING TO ROAD SUB-GRADE SHALL BE WITH APPROVED NATIVE MATERIAL, COMPACTED TO 100% S.P.D. IN ACCORDANCE WITH OPSD 802,010 or 802,013

SANITARY SEWERS

- 1. CONSTRUCTION OF SANITARY SEWERS AND SANITARY SERVICES SHALL BE IN ACCORDANCE WITH 0.P.S.D., NORFOLK COUNTY DESIGN CRITERIA AND
- 2. ALL SANITARY MANHOLES IN ACCORDANCE WITH 0.P.S.D. 701.010, WITH FRAME & COVER OPSD 401.010, TYPE A, CLOSED COVER. THE WORD "SAN" IS TO BE CAST INTO LID.
- 3. PIPE BEDDING SHALL BE CLASS 'B' IN ACCORDANCE WITH O.P.S.D. 802.010 or 802.013, UNLESS NOTED OTHERWISE.
- 4. TRENCH BACKFILL FROM TOP OF SEWER BEDDING TO ROAD SUB-GRADE SHALL BE WITH APPROVED NATIVE MATERIAL, COMPACTED TO 100% S.P.D.

<u>GRADING AND SEDIMENT CONTROL</u>

- 1. THE CONTRACTOR SHALL PRODUCE A WORKABLE TRAFFIC MANAGEMENT PLAN TO THE COUNTY SHOWING THAT 2—WAY TRAFFIC IS MAINTAINED, AT ALL TIMES DURING THE CONSTRUCTION PERIOD.
- 2. SILT SACKS TO BE INSTALLED IN ALL ROAD CB'S AND DCB'S PRIOR TO ANY CONSTRUCTION OR REMOVAL COMMENCES.
- 3. ALL EXISTING DRIVEWAYS ARE TO BE RESTORED TO EXISTING CONDITIONS OR BETTER TO THE SATISFACTION OF THE ENGINEER.
- 4. ALL BOULEVARD AREAS ARE TO BE GRADED TO A MIN. 2% AND MAX. 8% GRADE TOWARD THE ROAD, TO THE SATISFACTION OF THE COUNTY.
- 5. THE GRADE OF THE BOULEVARD AREAS ARE TO BE OF A CONSTANT GRADE FROM THE BACK OF THE CURB TO PROPERTY LINE
- 6. ALL DEBRIS AND CONSTRUCTION MATERIAL SHALL E REMOVED FROM THE BOULEVARD AREA UPON COMPLETION OF THE ROAD CONSTRUCTION AND SHALL BE KEPT CLEAN DURING CONSTRUCTION.
- 7. ALL DISTURBED AREAS TO BE REINSTATED TO EXISTING CONDITIONS OR WITH 100mm OF TOPSOIL AND SEEDED.

TABLE 1

Recommended restrained lengths of PVC pipe installed in Clay of Medium to Low Plasticity

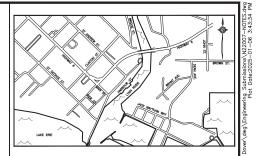
Nom						Valve
Pipe	90°	45°	22.5°	11.25*	Straight Tee	Hydrant
Size	Bend	Bend	Bend	Bend		Dead-End
100	3.0	1.3	0.6	0.4	4.2 / Br.	7.5
150	4.3	1.8	0.9	0.5	7.4 / 2.4	10.7
200	5.5	2.3	1.1	0.6	10.7 / 5.6	14.0
250	6.7	2.8	1.4	0.7	13.7 / 8.6	17.0
300	7.9	3.3	1.6	0.8	16.9 / 11.8	20.1

Nom Pipe Size	Reducing T	Гее	Nom Pipe Size	Reducing ¹	Тее	Nom Pipe Size	Reducing Tee
150x100	2.7 / E	3r.	200x150	6.3 /	Br.	250x200	9.8 / 3.7
200×100	1.1 / E	Зr.	250x150	5.3 /	Br.	300x200	9.0 / 1.5
250x100	Br. / B	Br.	300x150	4.2 /	Br.	300x250	13.0 / 7.0
300×100	Br. / B	Br.					

Nom	90°	45°	22.5°	11.25°
Pipe	Vertical	Vertical	Vertical	Vertical
Size	Offset	Offset	Offset	Offset
100	7.4 / 2.7	3.1 / 1.1	1.5 / 0.6	0.8 / 0.3
150	10.7 / 3.8	4.5 / 1.6	2.2 / 0.9	1.1 / 0.4
200	14.0 / 5.0	5.8 / 2.1	2.8 / 1.0	1.4 / 0.5
250	17.1 / 6.0	7.1 / 2.5	3.4 / 1.2	1.7 / 0.6
300	20.1 / 7.1	8.4 / 3.0	4.1 / 1.4	2.0 / 0.7
Note: The	first value is the recommender	t restraint length	of pipe on each side	of the down bend.

The second value is the recommended restrained length on each side of the up bend.

Recommended restrained lengths for tees are for the branch outlet (Br. stands for Branch Only) and assume a minimum attached length of pipe on each side of the run of the tee. The minimum attached lengths used for these calculations were .61m and 1.53m respectively. Restraint devices should also be installed on the run joints of the tees.



SUBJECT

KEY DIAN: N.T.S.

THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED.

BEFORE STARTING WORK, THE CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

BENCHMARK

DATUM: C6VD2013 ELEVATION: 181.779r

		DAT	_		
	1 1	DAI	L		
		7	Jan. 25	KJG	ISSUED FOR TENDER
		6	July 24	KJG	REVISED PER COUNTY COMMENTS
		5	June 24	KJG	REVISED PER LPRCA COMMENTS
		4	May 24	KJG	ISSUED FOR TENDER
		3	Oct. 23	KJG	90% SUBMISSION
		2	Mar. 23	APK	60% SUBMISISON
nd.		1	Sept. 22	KJG	30% SUBMISSION
		No.	DATE	BY	REVISIONS

SEPT. 2022 DESIGN WG CHECKED KGH DRAWN KJG CHECKED TF





HAMILTON, ON, L8H7T4 TEL. 905.578.1001 METROPOLITAN EMAIL: ENGINEERING@METROCON.CA

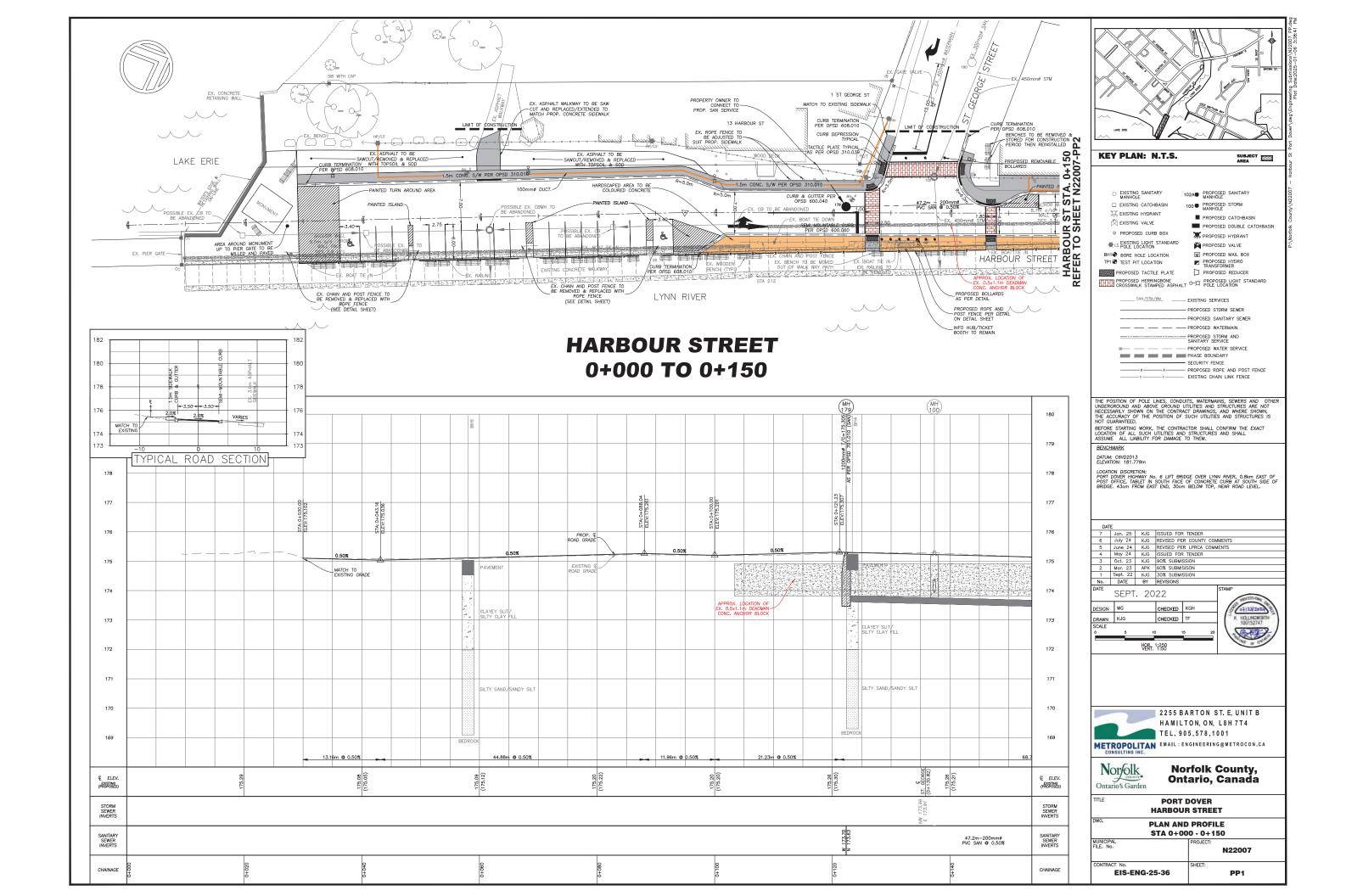
Norfolk. Ontario's Garden

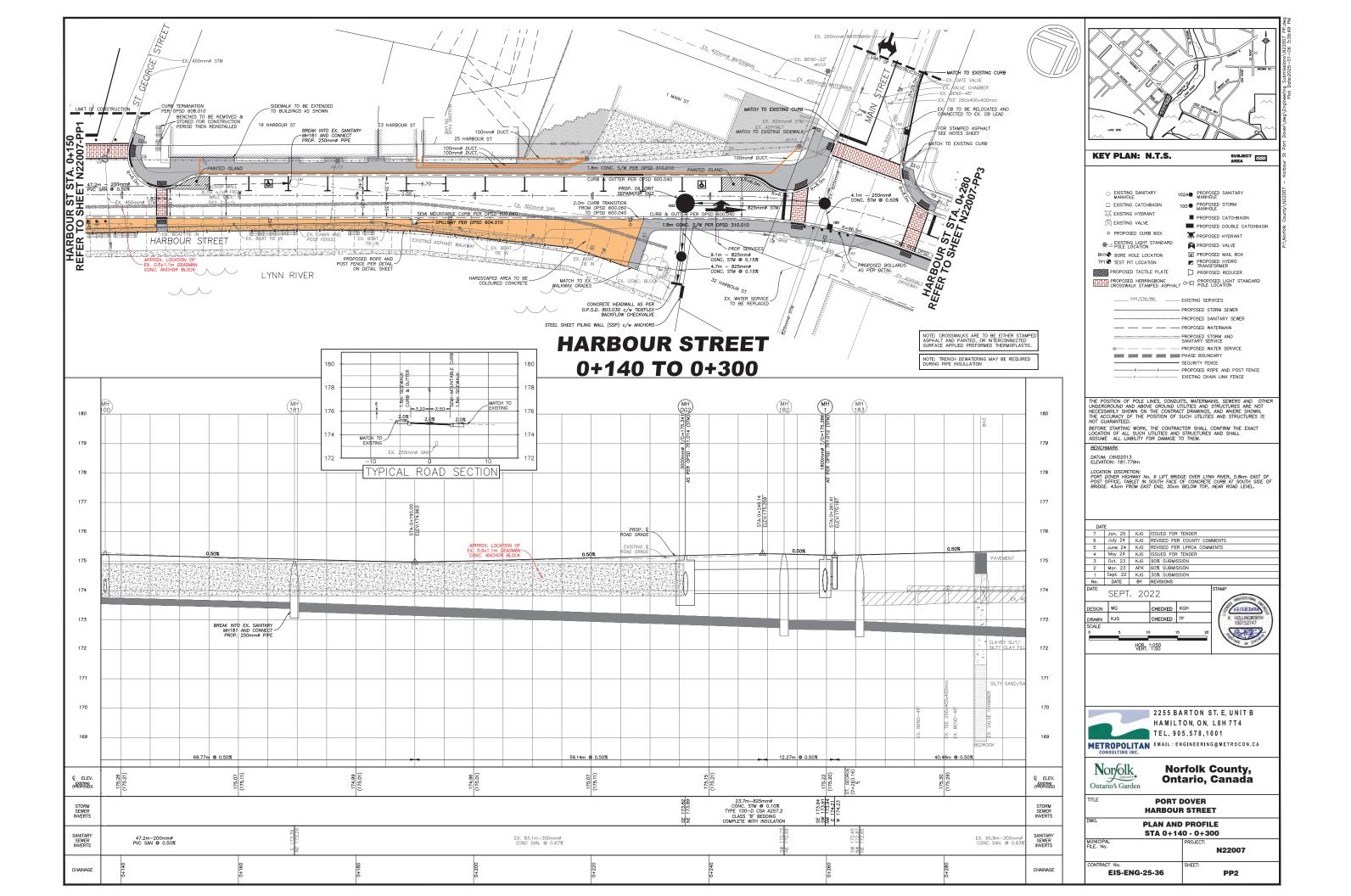
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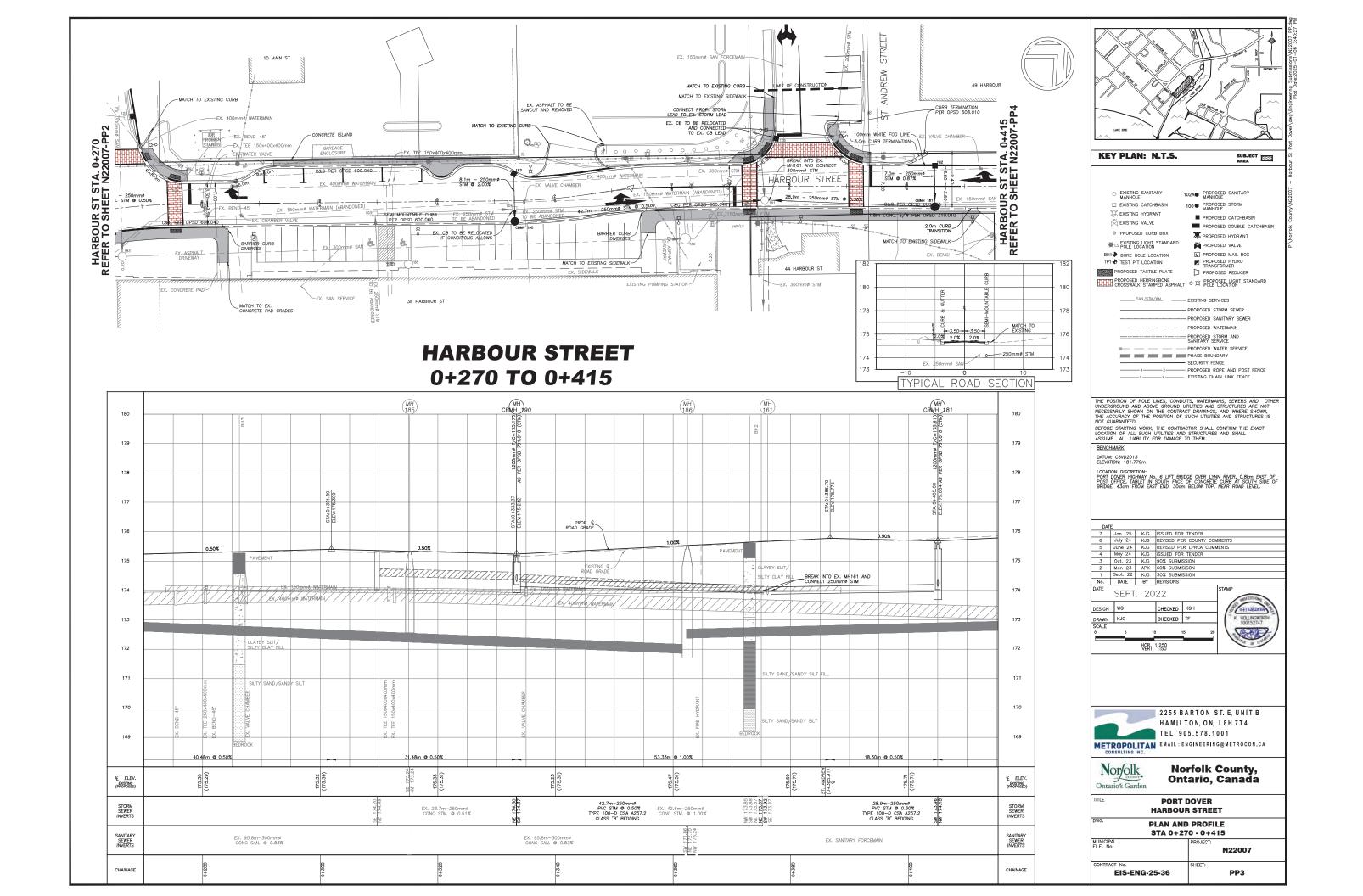
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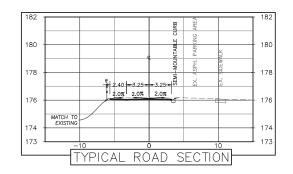
GENERAL NOTES & TYPICAL CROSS SECTION

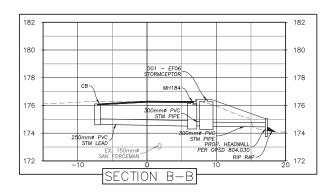
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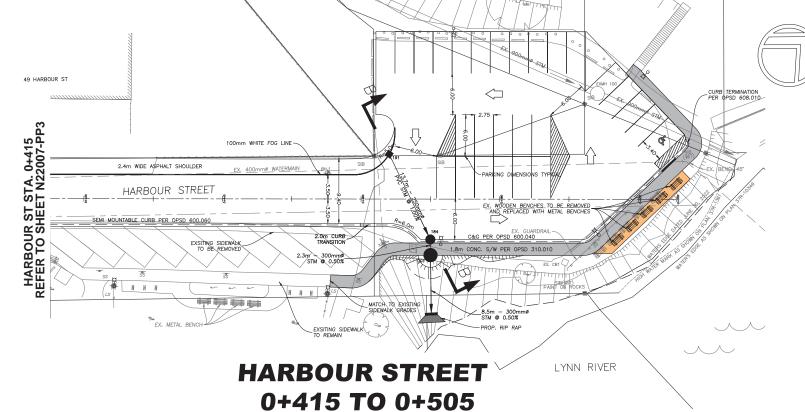


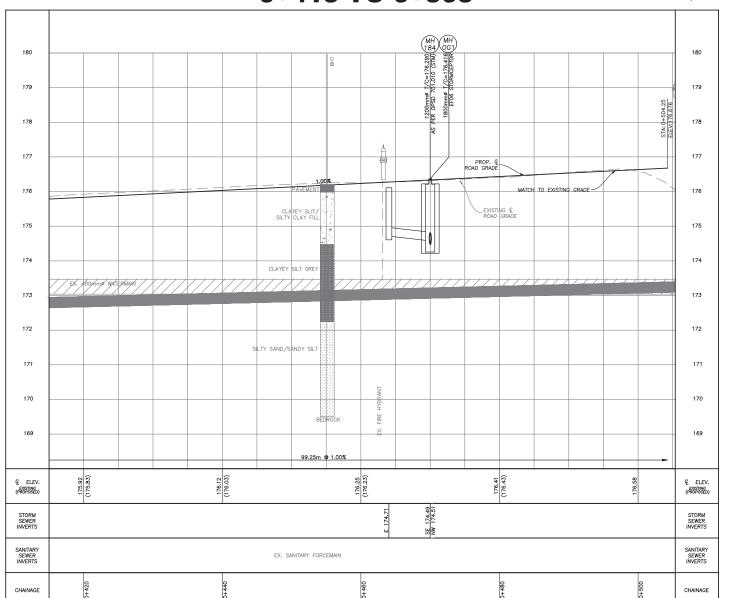


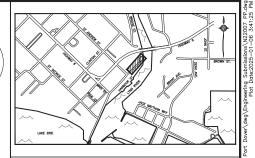












KEY PLAN: N.T.S.

 EXISTING SANITARY MANHOLE 102A PROPOSED SANITARY ☐ EXISTING CATCHBASIN X EXISTING HYDRANT ■ PROPOSED CATCHBASIN XX EXISTING VALVE PROPOSED DOUBLE CATCHBASIN

 PROPOSED CURB BOX LS POLE LOCATION STANDARD

BH1♣ BORE HOLE LOCATION TP1 TEST PIT LOCATION

PROPOSED HYDRO
TRANSFORMER

PROPOSED TACTILE PLATE

PROPOSED TEDUCER

PROPOSED HERRINGBONE PROPOSED LIGHT STANDARD POLE LOCATION

_____ SAN/STM/WM _____ EXISTING SERVICES

------ PROPOSED SANITARY SEWER

SECURITY FENCE ____x _____ PROPOSED ROPE AND POST FENCE _____ X _____ EXISTING CHAIN LINK FENCE

THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

DATUM: C6VD2013 ELEVATION: 181.779m

SEPT. 2022 CHECKED KGH CHECKED TF HOR. 1:250 VERT. 1:50

No. DATE BY REVISIONS



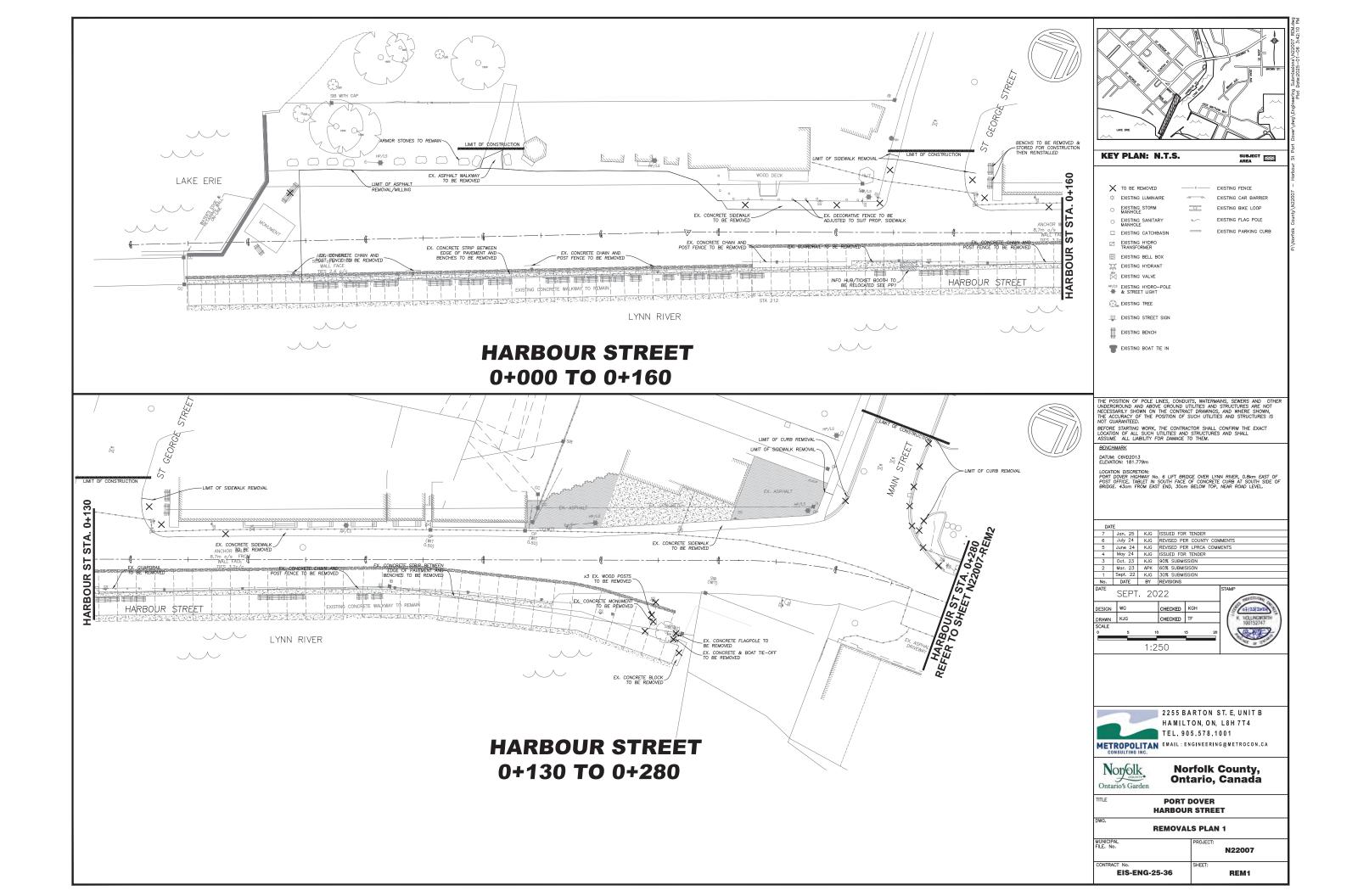


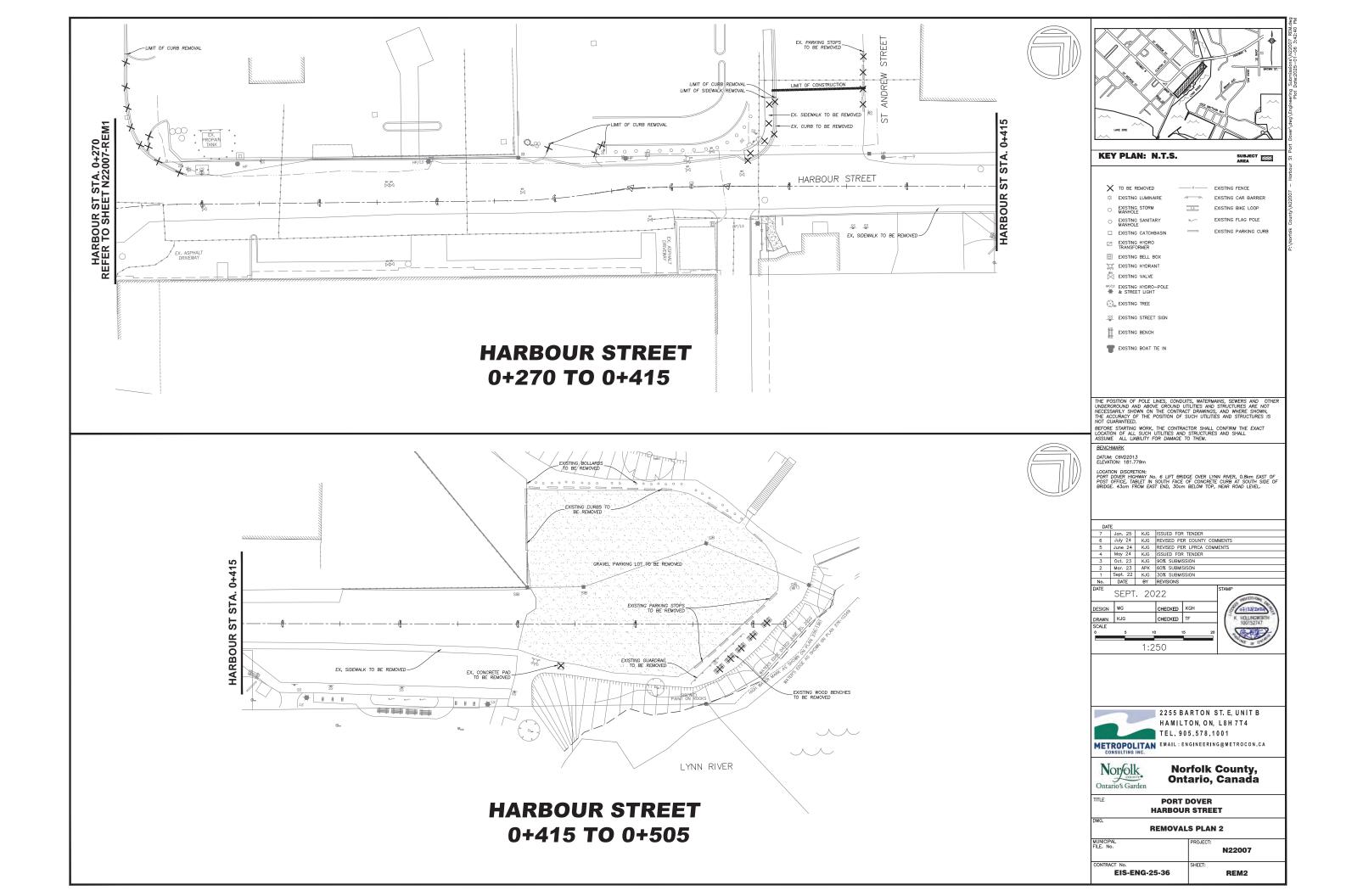
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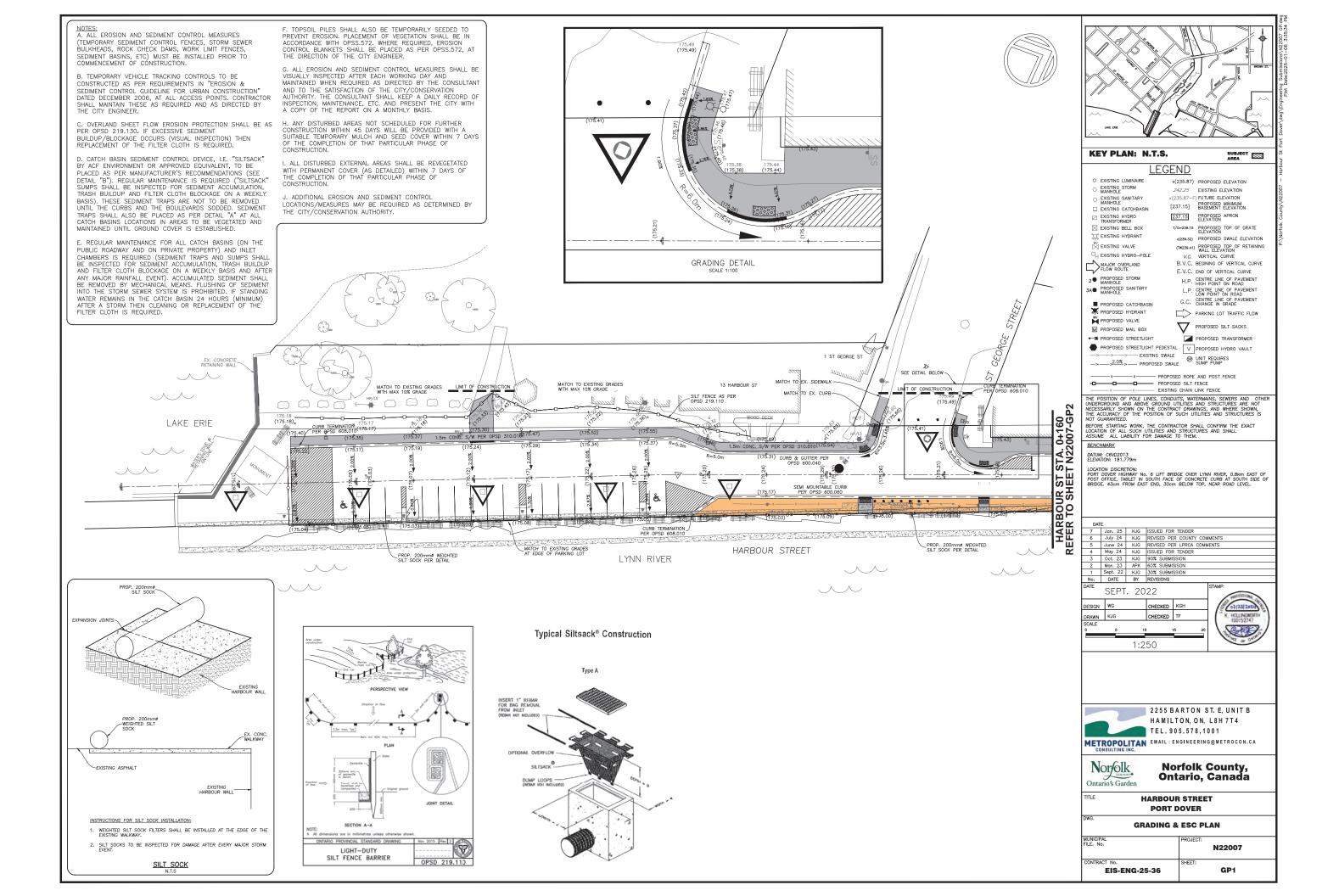
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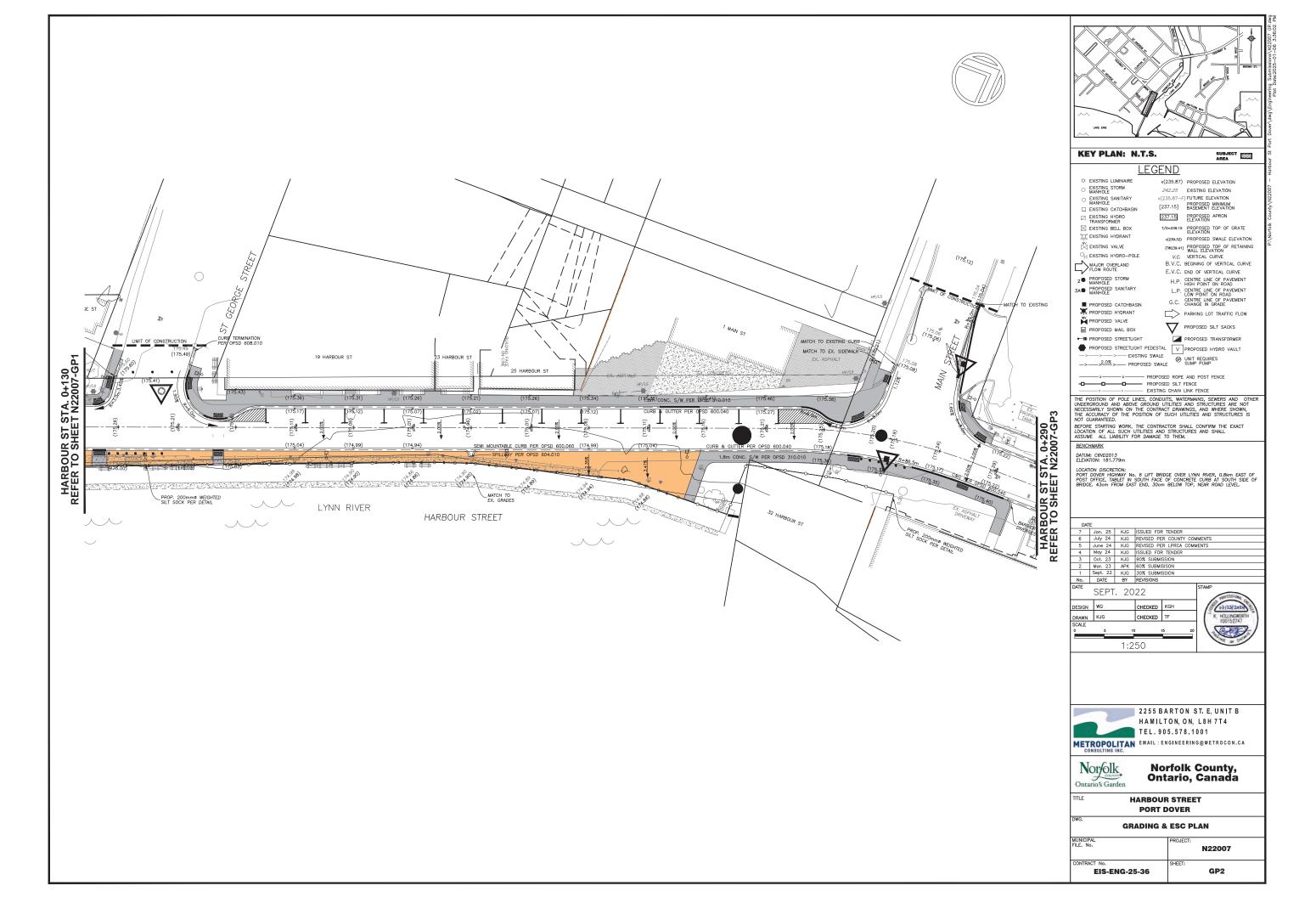
Norfolk County, Ontario, Canada

PORT DOVER HARBOUR STREET PLAN AND PROFILE STA 0+415 - 0+505 N22007 EIS-ENG-25-36

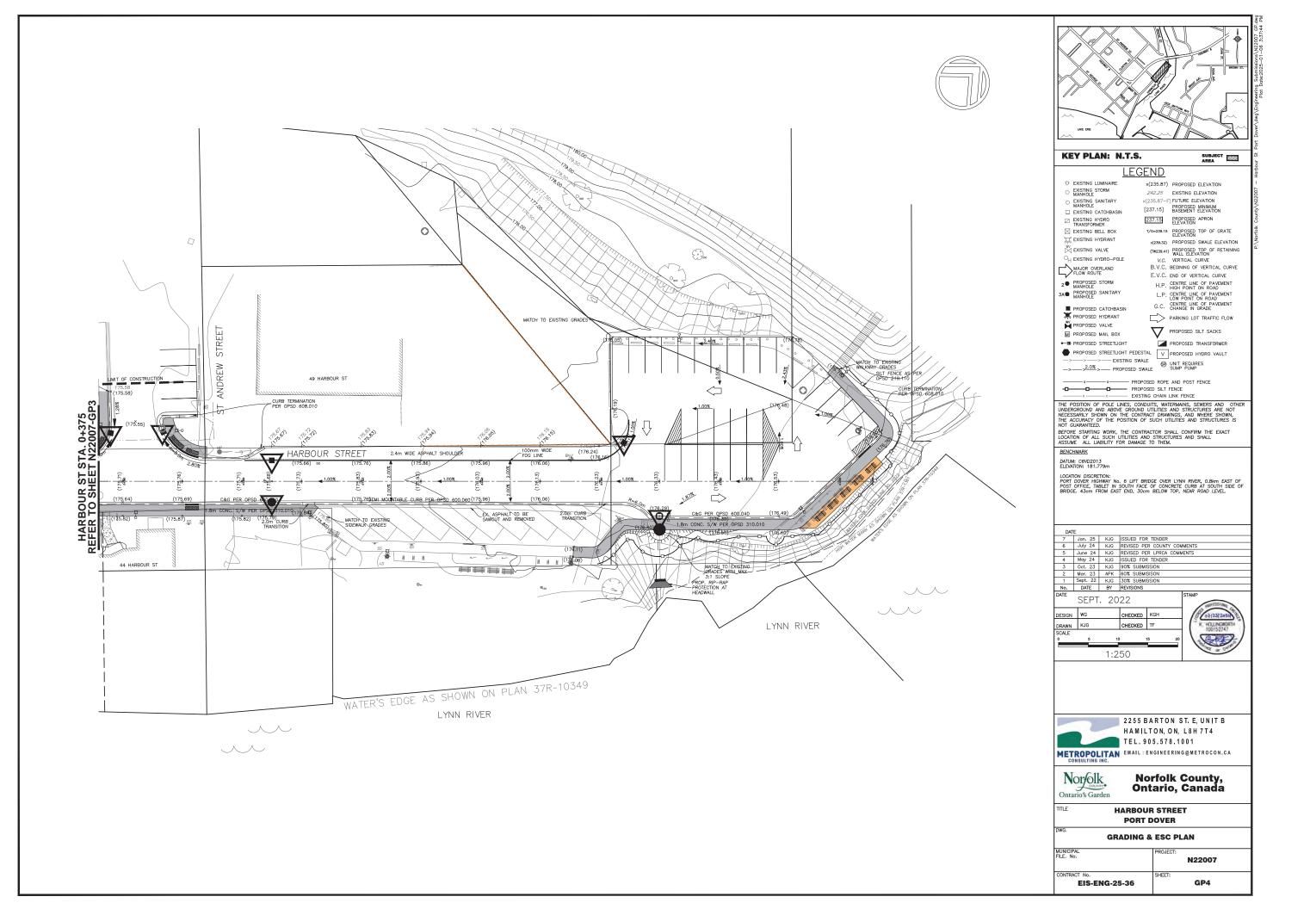


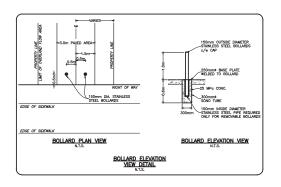


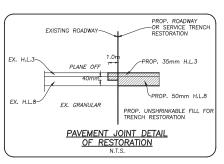


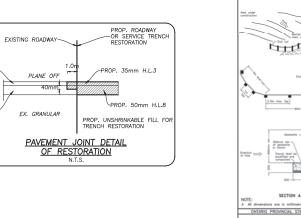


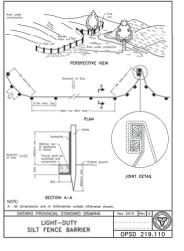


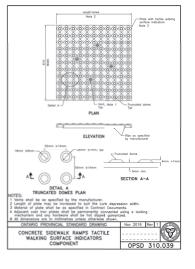


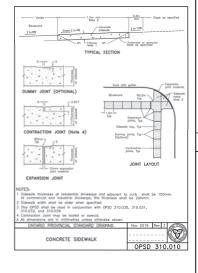




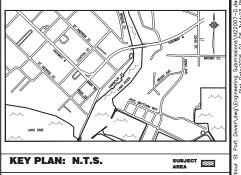


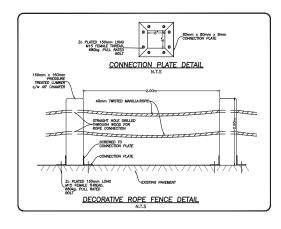


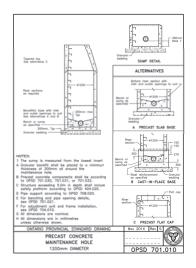


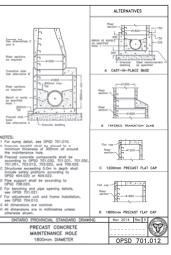


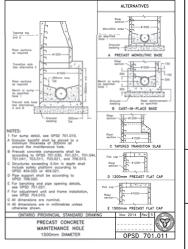








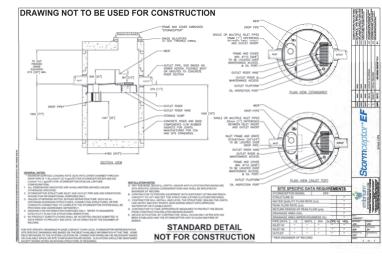


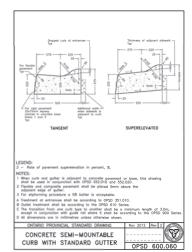


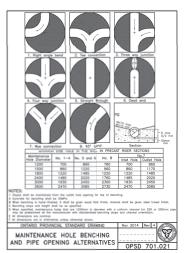


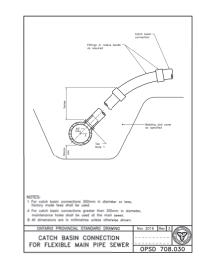
BENCHMARK

DATUM: C6VD2013 ELEVATION: 181.779r

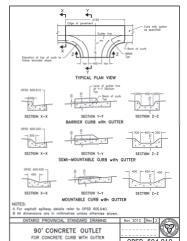


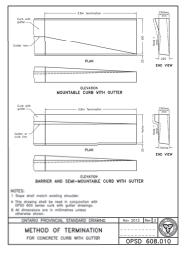


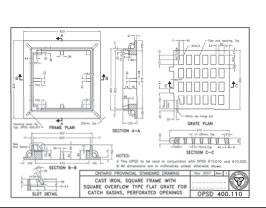


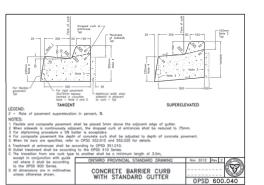


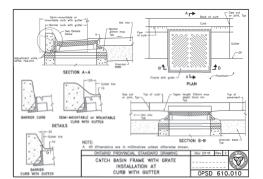














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Norfolk Ontario's Garden

Norfolk County, Ontario, Canada

PORT DOVER **HARBOUR STREET**

MUNICIPAL FILE. No.	PROJECT: N22007
CONTRACT No.	SHEET:
EIS-ENG-25-36	D

STANDARD DETAILS